Sequence Listing Summary

SEQ ID.

1. DPRP1 a.a sequence
2. DPRP1 DNA sequence
3. DPRP2 a.a. sequence
4. DPRP2 DNA sequence
5. DPRP-3 a.a. sequence
6. DPRP-3 DNA sequence
7. DPRP-1 transcript 0 a.a.. sequence
8. DPRP-1 transcript 0 DNA sequence
9. DPRP-1 transcript 1 a.a. sequence
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11. DPRP-1 transcript 2 a.a. sequence
12. DPRP-1 transcript 2 DNA sequence
13. DPRP-1 transcript 3 a.a. sequence
14. DPRP-1 transcript 3 DNA sequence
15. DPRP-1 transcript 4 a.a. sequence
16. DPRP-1 transcript 4 DNA sequence
17. DPRP-1 transcript 5 a.a. sequence
18. DPRP-1 transcript 5 DNA sequence
19. DPRP-1 transcript 6 a.a. sequence
20. DPRP-1 transcript 6 DNA sequence
21. DPRP-1 transcript 7 a.a. sequence
22. DPRP-1 transcript 7 DNA sequence
23. DPRP-2 transcript 0 a.a. sequence
24. DPRP-2 transcript 0 DNA sequence
25. DPRP-2 transcript 1 a.a. sequence
26. DPRP-2 transcript 1 DNA sequence
27. DPRP-2 transcript 2 a.a. sequence
28. DPRP-2 transcript 2 DNA sequence
29. DPRP-2 transcript 3 a.a. sequence
30. DPRP-2 transcript 3 DNA sequence
31. DPRP-2 transcript 4 a.a. sequence
32. DPRP-2 transcript 4 DNA sequence

33. DPRP-2 transcript 5 a.a. sequence

34. DPRP-2 transcript 5 DNA sequence

35. DPRP-2 transcript 6 a.a. sequence

36. DPRP-2 transcript 6 DNA sequence

5   37. DPRP-2 transcript 7 a.a. sequence

38. DPRP-2 transcript 7 DNA sequence

39. DPRP-2 transcript 8 a.a. sequence

40. DPRP-2 transcript 8 DNA sequence

41. DPRP-3 transcript 0 a.a. sequence

10   42. DPRP-3 transcript 0 DNA. Sequence
43. DPRP-3 transcript 1 a.a. sequence

44. DPRP-3 transcript 1 DNA sequence

45. DPRP1 forward primer used for cloning

46. DPRP1 reverse primer used for cloning full length gene

15   47. DPRP1 reverse primer used for cloning fusion gene

48. DPRP1 forward primer used for expression profiling

49. DPRP1 reverse primer used for expression profiling

50. DPRP2 forward primer used for cloning

51. DPRP2 reverse primer used for cloning full length gene

20   52. DPRP2 reverse primer used for cloning fusion gene

53. DPRP2 forward primer used for expression profiling

54. DPRP2 reverse primer used for expression profiling

55. DPRP3 forward primer used for cloning

56. DPRP3 reverse primer used for cloning full length gene

25   57. DPRP3 forward primer used for cloning fusion gene

58. DPRP3 reverse primer used for cloning fusion gene

59. DPRP1 peptide antigen sequences

60. DPRP2 peptide antigen sequences

61. DPRP3 peptide antigen sequences

<110> Qi, Steve
       Akinsanya, Karen
       Riviere, Pierre
       Junien, Jean-Louis

<120> NOVEL SERINE PROTEASE GENES RELATED TO DPPIV

<130> 70669

<150> US 60/240,117

<151> 2000-10-12

<160> 61

<170> Patent In version 3.1

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His Asp Phe Met Phe Val Lys Arg Asn Asp Pro Asp Gly Pro His Ser
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Asp Arg Ile Tyr Tyr Leu Ala Met Ser Gly Glu Asn Arg Glu Asn Thr
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Leu Phe Tyr Ser Glu Ile Pro Lys Thr Ile Asn Arg Ala Ala Val Leu
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Met Leu Ser Trp Lys Pro Leu Leu Asp Leu Phe Gln Ala Thr Leu Asp
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Tyr Gly Met Tyr Ser Arg Glu Glu Glu Leu Leu Arg Glu Arg Lys Arg
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Ile Gly Thr Val Gly Ile Ala Ser Tyr Asp Tyr His Gln Gly Ser Gly
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Thr Phe Leu Phe Gln Ala Gly Ser Gly Ile Tyr His Val Lys Asp Gly
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Thr Ser Cys Pro Asn Ile Arg Met Asp Pro Lys Leu Cys Pro Ala Asp
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Pro Asp Trp Ile Ala Phe Ile His Ser Asn Asp Ile Trp Ile Ser Asn
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Pro Glu Gly Lys Tyr Ala Trp Ser Ile Leu Leu Asp Arg Ser Gln Thr
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Asp Asp Val Met Glu Arg Gln Arg Leu Ile Glu Ser Val Pro Asp Ser
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Lys Phe Pro Ser Glu Pro Asn Arg Leu Leu Leu Leu His Gly Phe Leu
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Asp Glu Asn Val His Phe Ala His Thr Ser Ile Leu Leu Ser Phe Leu
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Val Arg Ala Gly Lys Pro Tyr Asp Leu Gln Ile Tyr Pro Gln Glu Arg
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His Ser Ile Arg Val Pro Glu Ser Gly Glu His Tyr Glu Leu His Leu
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Val Asn Lys Ala Pro His Asp Phe Gln Phe Val Gln Lys Thr Asp Glu
    50                  55                  60
Ser Gly Pro His Ser His Arg Leu Tyr Tyr Leu Gly Met Pro Tyr Gly
65                  70                  75                  80
Ser Arg Glu Asn Ser Leu Leu Tyr Ser Glu Ile Pro Lys Lys Val Arg
                85                  90                  95
Lys Glu Ala Leu Leu Leu Leu Ser Trp Lys Gln Met Leu Asp His Phe
            100                 105                 110
Gln Ala Thr Pro His His Gly Val Tyr Ser Arg Glu Glu Glu Leu Leu
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Arg Glu Arg Lys Arg Leu Gly Val Phe Gly Ile Thr Ser Tyr Asp Phe
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            180                 185                 190
Ile Cys Pro Ala Asp Pro Ala Phe Phe Ser Phe Ile Asn Asn Ser Asp
        195                 200                 205
Leu Trp Val Ala Asn Ile Glu Thr Gly Glu Glu Arg Arg Leu Thr Phe
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Cys His Gln Gly Leu Ser Asn Val Leu Asp Asp Pro Lys Ser Ala Gly
225                 230                 235                 240
Val Ala Thr Phe Val Ile Gln Glu Glu Phe Asp Arg Phe Thr Gly Tyr
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Trp Trp Cys Pro Thr Ala Ser Trp Glu Gly Ser Glu Gly Leu Lys Thr
            260                 265                 270
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        355                 360                 365
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Gln Val Glu Gly Leu Gln Phe Val Ala Glu Lys Tyr Gly Phe Ile Asp
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Leu Ile Leu His Gly Phe Leu Asp Glu Asn Val His Phe Phe His Thr
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Asn Phe Leu Val Ser Gln Leu Ile Arg Ala Gly Lys Pro Tyr Gln Leu
            820   825   830
Gln Ile Tyr Pro Asn Glu Arg His Ser Ile Arg Cys Pro Glu Ser Gly
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Lys Ser Glu Asn Gly His Val Ile Lys Leu Asn Ile Glu Thr Asn Ala
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Asp Ser Val Leu Gln Tyr Ala Ala Trp Gly Val Gln Gly Gln Gln Leu
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Ile Tyr Ile Phe Glu Asn Asn Ile Tyr Tyr Gln Pro Asp Ile Lys Ser
            195                 200                 205
Ser Ser Leu Arg Leu Thr Ser Ser Gly Lys Glu Glu Ile Ile Phe Asn
            210                 215                 220
Gly Ile Ala Asp Trp Leu Tyr Glu Glu Glu Leu Leu His Ser His Ile
225                 230                 235                 240
Ala His Trp Trp Ser Pro Asp Gly Glu Arg Leu Ala Phe Leu Met Ile
                245                 250                 255
Asn Asp Ser Leu Val Pro Thr Met Val Ile Pro Arg Phe Thr Gly Ala
            260                 265                 270
Leu Tyr Pro Lys Gly Lys Gln Tyr Pro Tyr Pro Lys Ala Gly Gln Val
            275                 280                 285
Asn Pro Thr Ile Lys Leu Tyr Val Val Asn Leu Tyr Gly Pro Thr His
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Thr Leu Glu Leu Met Pro Pro Asp Ser Phe Lys Ser Arg Glu Tyr Tyr
305                 310                 315                 320
Ile Thr Met Val Lys Trp Val Ser Asn Thr Lys Thr Val Val Arg Trp
                325                 330                 335
Leu Asn Arg Pro Gln Asn Ile Ser Ile Leu Thr Val Cys Glu Thr Thr
            340                 345                 350
Thr Gly Ala Cys Ser Lys Lys Tyr Glu Met Thr Ser Asp Thr Trp Leu
            355                 360                 365
Ser Gln Gln Asn Glu Glu Pro Val Phe Ser Arg Asp Gly Ser Lys Phe
370                 375                 380
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Ile Ala Met Phe Leu Ile Gln Ser Lys Ser Glu Gln Ile Thr Val Arg
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His Leu Thr Ser Gly Asn Trp Glu Val Ile Lys Ile Leu Ala Tyr Asp
        420                 425                 430
Glu Thr Thr Gln Lys Ile Tyr Phe Leu Ser Thr Glu Ser Ser Pro Arg
        435                 440                 445
Gly Arg Gln Leu Tyr Ser Ala Ser Thr Glu Gly Leu Leu Asn Arg Gln
    450                 455                 460
Cys Ile Ser Cys Asn Phe Met Lys Glu Gln Cys Thr Tyr Phe Asp Ala
465                 470                 475                     480
Ser Phe Ser Pro Met Asn Gln His Phe Leu Leu Phe Cys Glu Gly Pro
            485                 490                 495
Arg Val Pro Val Val Ser Leu His Ser Thr Asp Asn Pro Ala Lys Tyr
        500                 505                 510
Phe Ile Leu Glu Ser Asn Ser Met Leu Lys Glu Ala Ile Leu Lys Lys
        515                 520                 525
Lys Ile Gly Lys Pro Glu Ile Lys Ile Leu His Ile Asp Asp Tyr Glu
    530                 535                 540
Leu Pro Leu Gln Leu Ser Leu Pro Lys Asp Phe Met Asp Arg Asn Gln
545                 550                 555                     560
Tyr Ala Leu Leu Leu Ile Met Asp Glu Glu Pro Gly Gly Gln Leu Val
            565                 570                 575
Thr Asp Lys Phe His Ile Asp Trp Asp Ser Val Leu Ile Asp Met Asp
            580                 585                 590
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Asn Val Ile Val Ala Arg Phe Asp Gly Arg Gly Ser Gly Phe Gln Gly
        595                 600                 605
Leu Lys Ile Leu Gln Glu Ile His Arg Arg Leu Gly Ser Val Glu Val
        610                 615                 620
Lys Asp Gln Ile Thr Ala Val Lys Phe Leu Leu Lys Leu Pro Tyr Ile
625                 630                 635                 640
Asp Ser Lys Arg Leu Ser Ile Phe Gly Lys Gly Tyr Gly Gly Tyr Ile
                645                 650                 655
Ala Ser Met Ile Leu Lys Ser Asp Glu Lys Leu Phe Lys Cys Gly Ser
                660                 665                 670
Val Val Ala Pro Ile Thr Asp Leu Lys Leu Tyr Ala Ser Ala Phe Ser
                675                 680                 685
Glu Arg Tyr Leu Gly Met Pro Ser Lys Glu Glu Ser Thr Tyr Gln Ala
        690                 695                 700
Ala Ser Val Leu His Asn Val His Gly Leu Lys Glu Glu Asn Ile Leu
705                 710                 715                 720
Ile Ile His Gly Thr Ala Asp Thr Lys Val His Phe Gln His Ser Ala
                725                 730                 735
Glu Leu Ile Lys His Leu Ile Lys Ala Gly Val Asn Tyr Thr Met Gln
                740                 745                 750
Val Tyr Pro Asp Glu Gly His Asn Val Ser Glu Lys Ser Lys Tyr His
        755                 760                 765
Leu Tyr Ser Thr Ile Leu Lys Phe Phe Ser Asp Cys Leu Lys Glu Glu
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Ile Ser Val Leu Pro Gln Glu Pro Glu Glu Asp Glu
785                 790                 795

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<213>   Homo sapiens
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gagaaactgg aagggaattg ctattgctct gctggtgatt ttagttgtat gctcactcat       180
cactatgtca gtcatcctct taagcccaga tgaactcaca aattcgtcag aaaccagatt       240
gtctttggaa gacctcttta ggaaagactt tgtgcttcac gatccagagg ctcggtggat       300
caatgataca gatgtggtgt ataaaagcga gaatggacat gtcattaaac tgaatataga       360
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acattcagtt tcaccagatt taaaatatgt ccttctggca tatgatgtca aacagatttt       480
tcattattcg tatactgctt catatgtgat ttacaacata cacactaggg aagtttggga       540
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gcagcagctg atttatattt ttgaaaataa tatctactat caacctgata taaagagcag       660
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tgttaagcaa gggggacgtg gagaatttca ccacatagct atgttcctca tccagagtaa      1260
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aaggcagctg tacagtgctt ctactgaagg attattgaat cgccaatgca tttcatgtaa      1440
tttcatgaaa gaacaatgta catattttga tgccagtttt agtcccatga atcaacattt      1500
cttattattc tgtgaaggtc cagggtcccc agtggtcagc ctacatagta cggacaaccc      1560
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gtcccttccc aaagatttta tggaccgaaa ccagtatgct cttctgttaa taatggatga    1740
agaaccagga ggccagctgg ttacagataa gttccatatt gactgggatt ccgtactcat    1800
tgacatggat aatgtcattg tagcaagatt tgatggcaga ggaagtggat tccagggtct    1860
gaaaattttg caggagattc atcgaagatt aggttcagta gaagtaaagg accaaataac    1920
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aaagggttat ggtggctata ttgcatcaat gatcttaaaa tcagatgaaa agctttttaa    2040
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aagatacctt gggatgccat ctaaggaaga aagcacttac caggcagcca gtgtgctaca    2160
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agttcatttc caacactcag cagaattaat caagcaccta ataaaagctg gagtgaatta    2280
tactatgcag gtctacccag atgaaggtca taacgtatct gagaagagca gtatcatct    2340
ctacagcaca atcctcaaat tcttcagtga ttgtttgaag gaagaaatat ctgtgctacc    2400
acaggaacca gaagaagatg aataatggac cgtatttata cagaactgaa gggaatattg    2460
aggctcaatg aaacctgaca aagagactgt aatattgtag ttgctccaga atgtcaaggg    2520
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cac                                                                   2583


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<212>   PRT
<213>   Homo sapiens
<400>   7


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            20                  25                  30
Glu Pro Phe Tyr Val Glu Arg Tyr Ser Trp Ser Gln Leu Lys Lys Leu
            35                  40                  45
Leu Ala Asp Thr Arg Lys Tyr His Gly Tyr Met Met Ala Lys Ala Pro
        50                  55                  60
His Asp Phe Met Phe Val Lys Arg Asn Asp Pro Asp Gly Pro His Ser
65                  70                  75                  80
Asp Arg Ile Tyr Tyr Leu Ala Met Ser Gly Glu Asn Arg Glu Asn Thr
                85                  90                  95
Leu Phe Tyr Ser Glu Ile Pro Lys Thr Ile Asn Arg Ala Ala Val Leu
            100                 105                 110
Met Leu Ser Trp Lys Pro Leu Leu Asp Leu Phe Gln Ala Thr Leu Asp
            115                 120                 125
Tyr Gly Met Tyr Ser Arg Glu Glu Glu Leu Leu Arg Glu Arg Lys Arg
        130                 135                 140
Ile Gly Thr Val Gly Ile Ala Ser Tyr Asp Tyr His Gln Gly Ser Gly
145                 150                 155                 160
Thr Phe Leu Phe Gln Ala Gly Ser Gly Ile Tyr His Val Lys Asp Gly
                165                 170                 175
Gly Pro Gln Gly Phe Thr Gln Gln Pro Leu Arg Pro Asn Leu Val Glu
            180                 185                 190
Thr Ser Cys Pro Asn Ile Arg Met Asp Pro Lys Leu Cys Pro Ala Asp
            195                 200                 205
Pro Asp Trp Ile Ala Phe Ile His Ser Asn Asp Ile Trp Ile Ser Asn
        210                 215                 220
Ile Val Thr Arg Glu Glu Arg Arg Leu Thr Tyr Val His Asn Glu Leu
225                 230                 235                 240
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                245                 250                 255
Leu Gln Glu Glu Phe Asp Arg Tyr Ser Gly Tyr Trp Trp Cys Pro Lys
            260                 265                 270
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Glu Asn Asp Glu Ser Glu Val Glu Ile Ile His Val Thr Ser Pro Met
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Leu Glu Thr Arg Arg Ala Asp Ser Phe Arg Tyr Pro Lys Thr Gly Thr
305                 310                 315                 320
Ala Asn Pro Lys Val Thr Phe Lys Met Ser Glu Ile Met Ile Asp Ala
            325                 330                 335
Glu Gly Arg Ile Ile Asp Val Ile Asp Lys Glu Leu Ile Gln Pro Phe
            340                 345                 350
Glu Ile Leu Phe Glu Gly Val Glu Tyr Ile Ala Arg Ala Gly Trp Thr
        355                 360                 365
Pro Glu Gly Lys Tyr Ala Trp Ser Ile Leu Leu Asp Arg Ser Gln Thr
    370                 375                 380
Arg Leu Gln Ile Val Leu Ile Ser Pro Glu Leu Phe Ile Pro Val Glu
385                 390                 395                 400
Asp Asp Val Met Glu Arg Gln Arg Leu Ile Glu Ser Val Pro Asp Ser
            405                 410                 415
Val Thr Pro Leu Ile Ile Tyr Glu Glu Thr Thr Asp Ile Trp Ile Asn
            420                 425                 430
Ile His Asp Ile Phe His Val Phe Pro Gln Ser His Glu Glu Glu Ile
        435                 440                 445
Glu Phe Ile Phe Ala Ser Glu Cys Lys Thr Gly Phe Arg His Leu Tyr
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Lys Ile Thr Ser Ile Leu Lys Glu Ser Lys Tyr Lys Arg Ser Ser Gly
465                 470                 475                 480
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Ala Ile Thr Ser Gly Glu Trp Glu Val Leu Gly Arg His Gly Ser Asn
            500                 505                 510
Ile Gln Val Asp Glu Val Arg Arg Leu Val Tyr Phe Glu Gly Thr Lys
        515                 520                 525
Asp Ser Pro Leu Glu His His Leu Tyr Val Val Ser Tyr Val Asn Pro
    530                 535                 540
Gly Glu Val Thr Arg Leu Thr Asp Arg Gly Tyr Ser His Ser Cys Cys
545                 550                 555                 560
Ile Ser Gln His Cys Asp Phe Phe Ile Ser Lys Tyr Ser Asn Gln Lys
            565                 570                 575
Asn Pro His Cys Val Ser Leu Tyr Lys Leu Ser Ser Pro Glu Asp Asp
            580                 585                 590
Pro Thr Cys Lys Thr Lys Glu Phe Trp Ala Thr Ile Leu Asp Ser Ala
        595                 600                 605
Gly Pro Leu Pro Asp Tyr Thr Pro Pro Glu Ile Phe Ser Phe Glu Ser
    610                 615                 620
Thr Thr Gly Phe Thr Leu Tyr Gly Met Leu Tyr Lys Pro His Asp Leu
625                 630                 635                 640
Gln Pro Gly Lys Lys Tyr Pro Thr Val Leu Phe Ile Tyr Gly Gly Arg
            645                 650                 655
Leu Leu Leu Leu Gly Pro Gln Ser Leu Cys Gly Ser Ser Met Ile Gln
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Asp Thr Arg Asn Val Ile Trp Val Thr Leu Thr Arg Met Asn Arg Ala
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Ile Thr
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<210> 8
<211> 4523
<212> DNA
<213> Homo sapiens

<400> 8

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<213>   Homo sapiens
<400>   9


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Glu Pro Phe Tyr Val Glu Arg Tyr Ser Trp Ser Gln Leu Lys Lys Leu
            35                  40                  45
Leu Ala Asp Thr Arg Lys Tyr His Gly Tyr Met Met Ala Lys Ala Pro
        50                  55                  60
His Asp Phe Met Phe Val Lys Arg Asn Asp Pro Asp Gly Pro His Ser
65                  70                  75                  80
Asp Arg Ile Tyr Tyr Leu Ala Met Ser Gly Glu Asn Arg Glu Asn Thr
                85                  90                  95
Leu Phe Tyr Ser Glu Ile Pro Lys Thr Ile Asn Arg Ala Ala Val Leu
            100                 105                 110
Met Leu Ser Trp Lys Pro Leu Leu Asp Leu Phe Gln Ala Thr Leu Asp
            115                 120                 125
Tyr Gly Met Tyr Ser Arg Glu Glu Glu Leu Leu Arg Glu Arg Lys Arg
        130                 135                 140
Ile Gly Thr Val Gly Ile Ala Ser Tyr Asp Tyr His Gln Gly Ser Gly
145                 150                 155                 160
Thr Phe Leu Phe Gln Ala Gly Ser Gly Ile Tyr His Val Lys Asp Gly
                165                 170                 175
Gly Pro Gln Gly Phe Thr Gln Gln Pro Leu Arg Pro Asn Leu Val Glu
            180                 185                 190
Thr Ser Cys Pro Asn Ile Arg Met Asp Pro Lys Leu Cys Pro Ala Asp
            195                 200                 205
Pro Asp Trp Ile Ala Phe Ile His Ser Asn Asp Ile Trp Ile Ser Asn
210                 215                 220
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-54-

Ile Val Thr Arg Glu Glu Arg Arg Leu Thr Tyr Val His Asn Gly Lys
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<211> 1356
<212> DNA
<213> Homo sapiens
<400> 10

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gagtggaggc ggcgcagcat gaagcggcgc aggcccgctc catagcgcac gtcgggacgg   180
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cctaaattgg agcctttta tgttgagcgg tattcctgga gtcagcttaa aaagctgctt   360
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ctagtggaaa ctagttgtcc caacatacgg atggatccaa aattatgccc tgctgatcca   840
gactggattg cttttataca tagcaacgat atttggatat ctaacatcgt aaccagagaa   900
gaaaggagac tcacttatgt gcacaatggt aaggcgtagt tcttcagatt tactttctg   960
aacagtattt tttgaagtat aatttgctgc ttgcatttg aaattagatt accacgttgg   1020
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Glu Pro Phe Tyr Val Glu Arg Tyr Ser Trp Ser Gln Leu Lys Lys Leu
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Leu Ala Asp Thr Arg Lys Tyr His Gly Tyr Met Met Ala Lys Ala Pro
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His Asp Phe Met Phe Val Lys Arg Asn Asp Pro Asp Gly Pro His Ser
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Asp Arg Ile Tyr Tyr Leu Ala Met Ser Gly Glu Asn Arg Glu Asn Thr
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Leu Phe Tyr Ser Glu Ile Pro Lys Thr Ile Asn Arg Ala Ala Val Leu
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Met Leu Ser Trp Lys Pro Leu Leu Asp Leu Phe Gln Ala Thr Leu Asp
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Tyr Gly Met Tyr Ser Arg Glu Glu Glu Leu Leu Arg Glu Arg Lys Arg
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Thr Phe Leu Phe Gln Ala Gly Ser Gly Ile Tyr His Val Lys Asp Gly
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Gly Pro Gln Gly Phe Thr Gln Gln Pro Leu Arg Pro Asn Leu Val Glu
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Thr Ser Cys Pro Asn Ile Arg Met Asp Pro Lys Leu Cys Pro Ala Asp
            195                 200                 205
Pro Asp Trp Ile Ala Phe Ile His Ser Asn Asp Ile Trp Ile Ser Asn
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Ile Val Thr Arg Glu Glu Arg Arg Leu Thr Tyr Val His Asn Glu Leu
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Ala Glu Thr Thr Pro Ser Gly Gly Lys Ile Leu Arg Ile Leu Tyr Glu
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Glu Asn Asp Glu Ser Glu Val Glu Ile Ile His Val Thr Ser Pro Met
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Glu Gly Arg Ile Ile Asp Val Ile Asp Lys Glu Leu Ile Gln Pro Phe
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Pro Glu Gly Lys Tyr Ala Trp Ser Ile Leu Leu Asp Arg Ser Gln Thr
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Val Thr Pro Leu Ile Ile Tyr Glu Glu Thr Thr Asp Ile Trp Ile Asn
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Ile Gln Val Asp Glu Val Arg Arg Leu Val Tyr Phe Glu Gly Thr Lys
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Leu Ala Asp Thr Arg Lys Tyr His Gly Tyr Met Met Ala Lys Ala Pro
            50                  55                  60
His Asp Phe Met Phe Val Lys Arg Asn Asp Pro Asp Gly Pro His Ser
65                  70                  75                  80
Asp Arg Ile Tyr Tyr Leu Ala Met Ser Gly Glu Asn Arg Glu Asn Thr
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Gly Pro Gln Gly Phe Thr Gln Gln Pro Leu Arg Pro Asn Leu Val Glu
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Pro Asp Trp Ile Ala Phe Ile His Ser Asn Asp Ile Trp Ile Ser Asn
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Ile Val Thr Arg Glu Glu Arg Arg Leu Thr Tyr Val His Asn Glu Leu
225                 230                 235                 240
Ala Asn Met Glu Glu Asp Ala Arg Ser Ala Gly Val Ala Thr Phe Val
                245                 250                 255
Leu Gln Glu Glu Phe Asp Arg Tyr Ser Gly Tyr Trp Trp Cys Pro Lys
                260                 265                 270
Ala Glu Thr Thr Pro Ser Gly Gly Lys Ile Leu Arg Ile Leu Tyr Glu
        275                 280                 285
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Leu Glu Thr Arg Arg Ala Asp Ser Phe Arg Tyr Pro Lys Thr Gly Thr
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<212>   DNA
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-60-

<210> 15
<211> 108
<212> PRT
<213> Homo sapiens
<400> 15

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        35                  40                  45
Leu Ala Asp Thr Arg Lys Tyr His Gly Tyr Met Met Ala Lys Ala Pro
    50                  55                  60
His Asp Phe Met Phe Val Lys Arg Asn Asp Pro Asp Gly Pro His Ser
65                  70                  75                  80
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gccgatacca gaaaatatca tggctacatg atggctaagg caccacatga tttcatgttt   420
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<210> 17
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<212> PRT
<213> Homo sapiens
<400> 17

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Thr Ala Asp Cys Glu Glu Asn Ile Glu Ser Gln Asp Arg Pro Lys Leu
            20                  25                  30
Glu Pro Phe Tyr Val Glu Arg Tyr Ser Trp Ser Gln Leu Lys Lys Leu
        35                  40                  45
Leu Ala Asp Thr Arg Lys Tyr His Gly Tyr Met Met Ala Lys Ala Pro
    50                  55                  60
His Asp Phe Met Phe Val Lys Arg Asn Asp Pro Asp Gly Pro His Ser
65                  70                  75                  80
Asp Arg Ile Tyr Tyr Leu Ala Met Ser Gly Glu Asn Arg Glu Asn Thr
                85                  90                  95
Leu Phe Tyr Ser Glu Ile Pro Lys Thr Ile Asn Arg Ala Ala Val Leu
            100                 105                 110
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Met Leu Ser Trp Lys Pro Leu Leu Asp Leu Phe Gln Ala Thr Leu Asp
        115                 120                 125
Tyr Gly Met Tyr Ser Arg Glu Glu Glu Leu Leu Arg Glu Arg Lys Arg
    130                 135                 140
Ile Gly Thr Val Gly Ile Ala Ser Tyr Asp Tyr His Gln Gly Ser Gly
145                 150                 155                 160
Thr Phe Leu Phe Gln Ala Gly Ser Gly Ile Tyr His Val Lys Asp Gly
            165                 170                 175
Gly Pro Gln Gly Phe Thr Gln Pro Leu Arg Pro Asn Leu Val Glu Thr
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Cys Ala
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<210>   18
<211>   832
<212>   DNA
<213>   Homo sapiens
<400>   18
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gagtggaggc ggcgcagcat gaagcggcgc aggcccgctc catagcgcac gtcgggacgg    180
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attgcttctt acgattatca ccaaggaagt ggaacatttc tgtttcaagc cggtagtgga    720
atttatcacg taaaagatgg agggccacaa ggatttacgc wacaaccttt aaggcccaat    780
ctagtggaaa ctasttgtsc caracytgca tgacccaatc agatcctgta ga             832
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<210>   19
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<213>   Homo sapiens
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Thr Ala Asp Cys Glu Glu Asn Ile Glu Ser Gln Asp Arg Pro Lys Leu
            20                  25                  30
Glu Pro Phe Tyr Val Glu Arg Tyr Ser Trp Ser Gln Leu Lys Lys Leu
        35                  40                  45
Leu Ala Asp Thr Arg Lys Tyr His Gly Tyr Met Met Ala Lys Ala Pro
    50                  55                  60
His Asp Phe Met Phe Val Lys Arg Asn Asp Pro Asp Gly Pro His Ser
65                  70                  75                  80
Asp Arg Ile Tyr Tyr Leu Ala Met Ser Gly Glu Asn Arg Glu Asn Thr
                85                  90                  95
Leu Phe Tyr Ser Glu Ile Pro Lys Thr Ile Asn Arg Ala Ala Val Leu
            100                 105                 110
Met Leu Ser Trp Lys Pro Leu Leu Asp Leu Phe Gln Ala Thr Leu Asp
        115                 120                 125
Tyr Gly Met Tyr Ser Arg Glu Glu Glu Leu Leu Arg Glu Arg Lys Arg
    130                 135                 140
Ile Gly Thr Val Gly Ile Ala Ser Tyr Asp Tyr His Gln Gly Ser Gly
145                 150                 155                 160
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```
Thr Phe Leu Phe Gln Ala Gly Ser Gly Ile Tyr His Val Lys Asp Gly
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Gly Pro Gln Gly Phe Thr Gln Gln Pro Leu Arg Pro Asn Leu Val Glu
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Thr Ser Cys Pro Asn Ile Arg Met Asp Pro Lys Leu Cys Pro Ala Asp
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Pro Asp Trp Ile Ala Phe Ile His Ser Asn Asp Ile Trp Ile Ser Asn
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Ile Val Thr Arg Glu Glu Arg Arg Leu Thr Tyr Val His Asn Glu Leu
225                 230                 235                 240
Ala Asn Met Glu Glu Asp Ala Arg Ser Ala Gly Val Ala Thr Phe Val
            245                 250                 255
Leu Gln Glu Glu Phe Asp Arg Tyr Ser Gly Tyr Trp Trp Cys Pro Lys
            260                 265                 270
Ala Glu Thr Thr Pro Ser Gly Gly Lys Ile Leu Arg Ile Leu Tyr Glu
            275                 280                 285
Glu Asn Asp Glu Ser Glu Val Glu Ile Ile His Val Thr Ser Pro Met
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Leu Glu Thr Arg Arg Ala Asp Ser Phe Arg Tyr Pro Lys Thr Gly Thr
305                 310                 315                 320
Ala Asn Pro Lys Val Thr Phe Lys Met Ser Glu Ile Met Ile Asp Ala
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Glu Gly Arg Ile Ile Asp Val Ile Asp Lys Glu Leu Ile Gln Pro Phe
            340                 345                 350
Glu Ile Leu Phe Glu Gly Val Glu Tyr Ile Ala Arg Ala Gly Trp Thr
            355                 360                 365
Pro Glu Gly Lys Tyr Ala Trp Ser Ile Leu Leu Asp Arg Ser Gln Thr
    370                 375                 380
Arg Leu Gln Ile Val Leu Ile Ser Pro Glu Leu Phe Ile Pro Val Glu
385                 390                 395                 400
Asp Asp Val Met Glu Arg Gln Arg Leu Ile Glu Ser Val Pro Asp Ser
            405                 410                 415
Val Thr Pro Leu Ile Ile Tyr Glu Glu Thr Thr Asp Ile Trp Ile Asn
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Ile His Asp Ile Phe His Val Phe Pro Gln Ser His Glu Glu Glu Ile
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Glu Phe Ile Phe Ala Ser Glu Cys Lys Thr Gly Phe Arg His Leu Tyr
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            500                 505                 510
Ile Gln Val Asp Glu Val Arg Arg Leu Val Tyr Phe Glu Gly Thr Lys
            515                 520                 525
Asp Ser Pro Leu Glu His His Leu Tyr Val Val Ser Tyr Val Asn Pro
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Gly Glu Val Thr Arg Leu Thr Asp Arg Gly Tyr Ser His Ser Cys Cys
545                 550                 555                 560
Ile Ser Gln His Cys Asp Phe Phe Ile Ser Lys Tyr Ser Asn Gln Lys
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Asn Pro His Cys Val Ser Leu Tyr Lys Leu Ser Ser Pro Glu Asp Asp
            580                 585                 590
Pro Thr Cys Lys Thr Lys Glu Phe Trp Ala Thr Ile Leu Asp Ser Ala
            595                 600                 605
Gly Pro Leu Pro Asp Tyr Thr Pro Pro Glu Ile Phe Ser Phe Glu Ser
    610                 615                 620
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Thr Thr Gly Phe Thr Leu Tyr Gly Met Leu Tyr Lys Pro His Asp Leu
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Val Lys

<210>   20
<211>   4676
<212>   DNA
<213>   Homo sapiens
<400>   20

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<212> PRT
<213> Homo sapiens
<400> 21

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Glu Pro Phe Tyr Val Glu Arg Tyr Ser Trp Ser Gln Leu Lys Lys Leu
        35                  40                  45
Leu Ala Asp Thr Arg Lys Tyr His Gly Tyr Met Met Ala Lys Ala Pro
    50                  55                  60
His Asp Phe Met Phe Val Lys Arg Asn Asp Pro Asp Gly Pro His Ser
65                  70                  75                  80
Asp Arg Ile Tyr Tyr Leu Ala Met Ser Gly Glu Asn Arg Glu Asn Thr
                85                  90                  95
Leu Phe Tyr Ser Glu Ile Pro Lys Thr Ile Asn Arg Ala Ala Val Leu
            100                 105                 110
Met Leu Ser Trp Lys Pro Leu Leu Asp Leu Phe Gln Ala Thr Leu Asp
        115                 120                 125
Tyr Gly Met Tyr Ser Arg Glu Glu Glu Leu Leu Arg Glu Arg Lys Arg
    130                 135                 140
Ile Gly Thr Val Gly Ile Ala Ser Tyr Asp Tyr His Gln Gly Ser Gly
145                 150                 155                 160
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Thr Phe Leu Phe Gln Ala Gly Ser Gly Ile Tyr His Val Lys Asp Gly
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Thr Ser Cys Pro Asn Ile Arg Met Asp Pro Lys Leu Cys Pro Ala Asp
            195                 200                 205
Pro Asp Trp Ile Ala Phe Ile His Ser Asn Asp Ile Trp Ile Ser Asn
    210                 215                 220
Ile Val Thr Arg Glu Glu Arg Arg Leu Thr Tyr Val His Asn Glu Leu
225                 230                 235                 240
Ala Asn Met Glu Glu Asp Ala Arg Ser Ala Gly Val Ala Thr Phe Val
            245                 250                 255
Leu Gln Glu Glu Phe Asp Arg Tyr Ser Gly Tyr Trp Trp Cys Pro Lys
            260                 265                 270
Ala Glu Thr Thr Pro Ser Gly Gly Lys Ile Leu Arg Ile Leu Tyr Glu
    275                 280                 285
Glu Asn Asp Glu Ser Glu Val Glu Ile Ile His Val Thr Ser Pro Met
    290                 295                 300
Leu Glu Thr Arg Arg Ala Asp Ser Phe Arg Tyr Pro Lys Thr Gly Thr
305                 310                 315                 320
Ala Asn Pro Lys Val Thr Phe Lys Met Ser Glu Ile Met Ile Asp Ala
            325                 330                 335
Glu Gly Arg Ile Ile Asp Val Ile Asp Lys Glu Leu Ile Gln Pro Phe
            340                 345                 350
Glu Ile Leu Phe Glu Gly Val Glu Tyr Ile Ala Arg Ala Gly Trp Thr
    355                 360                 365
Pro Glu Gly Lys Tyr Ala Trp Ser Ile Leu Leu Asp Arg Ser Gln Thr
    370                 375                 380
Arg Leu Gln Ile Val Leu Ile Ser Pro Glu Leu Phe Ile Pro Val Glu
385                 390                 395                 400
Asp Asp Val Met Glu Arg Gln Arg Leu Ile Glu Ser Val Pro Asp Ser
            405                 410                 415
Val Thr Pro Leu Ile Ile Tyr Glu Glu Thr Thr Asp Ile Trp Ile Asn
            420                 425                 430
Ile His Asp Ile Phe His Val Phe Pro Gln Ser His Glu Glu Glu Ile
            435                 440                 445
Glu Phe Ile Phe Ala Ser Glu Cys Lys Thr Gly Phe Arg His Leu Tyr
    450                 455                 460
Lys Ile Thr Ser Ile Leu Lys Glu Ser Lys Tyr Lys Arg Ser Ser Gly
465                 470                 475                 480
Gly Leu Pro Ala Pro Ser Asp Phe Lys Cys Pro Ile Lys Glu Glu Ile
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Ala Ile Thr Ser Gly Glu Trp Glu Val Leu Gly Arg His Gly Ser Asn
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Ile Gln Val Asp Glu Val Arg Arg Leu Val Tyr Phe Glu Gly Thr Lys
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Asp Ser Pro Leu Glu His His Leu Tyr Val Val Ser Tyr Val Asn Pro
    530                 535                 540
Gly Glu Val Thr Arg Leu Thr Asp Arg Gly Tyr Ser His Ser Cys Cys
545                 550                 555                 560
Ile Ser Gln His Cys Asp Phe Phe Ile Ser Lys Tyr Ser Asn Gln Lys
            565                 570                 575
Asn Pro His Cys Val Ser Leu Tyr Lys Leu Ser Ser Pro Glu Asp Asp
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Leu Arg Cys Ser Trp
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<212> PRT
<213> Homo sapiens
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Thr Gly Thr Pro Thr Ala Asp Arg Gly Asp Ala Ala Ala Thr Asp Asp
        35                  40                  45
Pro Ala Ala Arg Phe Gln Val Gln Lys His Ser Trp Asp Gly Leu Arg
    50                  55                  60
Ser Ile Ile His Gly Ser Arg Lys Tyr Ser Gly Leu Ile Val Asn Lys
65                  70                  75                  80
Ala Pro His Asp Phe Gln Phe Val Gln Lys Thr Asp Glu Ser Gly Pro
                85                  90                  95
His Ser His Arg Leu Tyr Tyr Leu Gly Met Pro Tyr Gly Ser Arg Glu
            100                 105                 110
Asn Ser Leu Leu Tyr Ser Glu Ile Pro Lys Lys Val Arg Lys Glu Ala
            115                 120                 125
Leu Leu Leu Leu Ser Trp Lys Gln Met Leu Asp His Phe Gln Ala Thr
        130                 135                 140
Pro His His Gly Val Tyr Ser Arg Glu Glu Glu Leu Leu Arg Glu Arg
145                 150                 155                 160
Lys Arg Leu Gly Val Phe Gly Ile Thr Ser Tyr Asp Phe His Ser Glu
                165                 170                 175
Ser Gly Leu Phe Leu Phe Gln Ala Ser Asn Ser Leu Phe His Cys Arg
            180                 185                 190
Asp Gly Gly Lys Asn Gly Phe Met Val Ser Pro Met Lys Pro Leu Glu
            195                 200                 205
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Ile Lys Thr Gln Cys Ser Gly Pro Arg Met Asp Pro Lys Ile Cys Pro
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Ala Asp Pro Ala Phe Phe Ser Phe Ile Asn Asn Ser Asp Leu Trp Val
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Ala Asn Ile Glu Thr Gly Glu Glu Arg Arg Leu Thr Phe Cys His Gln
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Gly Leu Ser Asn Val Leu Asp Asp Pro Lys Ser Ala Gly Val Ala Thr
                260                 265                 270
Phe Val Ile Gln Glu Glu Phe Asp Arg Phe Thr Gly Tyr Trp Trp Cys
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Pro Thr Ala Ser Trp Glu Gly Ser Glu Gly Leu Lys Thr Leu Arg Ile
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Leu Tyr Glu Glu Val Asp Glu Ser Glu Val Glu Val Ile His Val Pro
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Ser Pro Ala Leu Glu Glu Arg Lys Thr Asp Ser Tyr Arg Tyr Pro Arg
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Thr Gly Ser Lys Asn Pro Lys Ile Ala Leu Lys Leu Ala Glu Phe Gln
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Thr Asp Ser Gln Gly Lys Ile Val Ser Thr Gln Glu Lys Glu Leu Val
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Gln Pro Phe Ser Ser Leu Phe Pro Lys Val Glu Tyr Ile Ala Arg Ala
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Gly Trp Thr Arg Asp Gly Lys Tyr Ala Trp Ala Met Phe Leu Asp Arg
385                 390                 395                 400
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Pro Arg Asn Val Gln Pro Tyr Val Val Tyr Glu Glu Val Thr Asn Val
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Trp Ile Asn Val His Asp Ile Phe Tyr Pro Phe Pro Gln Ser Glu Gly
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Cys His Leu Tyr Lys Val Thr Ala Val Leu Lys Ser Gln Gly Tyr Asp
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Tyr Glu Ala Ala Gly Glu Ile Val Arg Leu Thr Thr Pro Gly Phe Ser
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His Ser Cys Ser Met Ser Gln Asn Phe Asp Met Phe Val Ser His Tyr
                580                 585                 590
Ser Ser Val Ser Thr Pro Pro Cys Val His Val Tyr Lys Leu Ser Gly
        595                 600                 605
Pro Asp Asp Asp Pro Leu His Lys Gln Pro Arg Phe Trp Ala Ser Met
    610                 615                 620
Met Glu Ala Ala Ser Cys Pro Pro Asp Tyr Val Pro Pro Glu Ile Phe
625                 630                 635                 640
His Phe His Thr Arg Ser Asp Val Arg Leu Tyr Gly Met Ile Tyr Lys
                645                 650                 655
Pro His Ala Leu Gln Pro Gly Lys Lys His Pro Thr Val Leu Phe Val
                660                 665                 670
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Tyr Gly Gly Pro Gln Val Gln Leu Val Asn Asn Ser Phe Lys Gly Ile
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Lys Tyr Leu Arg Leu Asn Thr Leu Ala Ser Leu Gly Tyr Ala Val Val
    690   695   700
Val Ile Asp Gly Arg Gly Ser Cys Gln Arg Gly Leu Arg Phe Glu Gly
705   710   715   720
Ala Leu Lys Asn Gln Met Gly Gln Val Glu Ile Glu Asp Gln Val Glu
            725   730   735
Gly Leu Gln Phe Val Ala Glu Lys Tyr Gly Phe Ile Asp Leu Ser Arg
            740   745   750
Val Ala Ile His Gly Trp Ser Tyr Gly Gly Phe Leu Ser Leu Met Gly
        755   760   765
Leu Ile His Lys Pro Gln Val Phe Lys Val Ala Ile Ala Gly Ala Pro
    770   775   780
Val Thr Val Trp Met Ala Tyr Asp Thr Gly Tyr Thr Glu Arg Tyr Met
785   790   795   800
Asp Val Pro Glu Asn Asn Gln His Gly Tyr Glu Ala Gly Ser Val Ala
            805   810   815
Leu His Val Glu Lys Leu Pro Asn Glu Pro Asn Arg Leu Leu Ile Leu
        820   825   830
His Gly Phe Leu Asp Glu Asn Val His Phe Phe His Thr Asn Phe Leu
        835   840   845
Val Ser Gln Leu Ile Arg Ala Gly Lys Pro Tyr Gln Leu Gln Ile Tyr
    850   855   860
Pro Asn Glu Arg His Ser Ile Arg Cys Pro Glu Ser Gly Glu His Tyr
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Glu Val Thr Leu Leu His Phe Leu Gln Glu Tyr Leu
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<211>   4302
<212>   DNA
<213> Homo sapiens
<400>   24

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<210> 25
<211> 518
<212> PRT
<213> Homo sapiens
<400> 25

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65                  70                  75                      80
Ala Pro His Asp Phe Gln Phe Val Gln Lys Thr Asp Glu Ser Gly Pro
                85                  90                  95
His Ser His Arg Leu Tyr Tyr Leu Gly Met Pro Tyr Gly Ser Arg Glu
            100                 105                 110
Asn Ser Leu Leu Tyr Ser Glu Ile Pro Lys Lys Val Arg Lys Glu Ala
            115                 120                 125
Leu Leu Leu Leu Ser Trp Lys Gln Met Leu Asp His Phe Gln Ala Thr
    130                 135                 140
Pro His His Gly Val Tyr Ser Arg Glu Glu Glu Leu Leu Arg Glu Arg
145                 150                 155                 160
Lys Arg Leu Gly Val Phe Gly Ile Thr Ser Tyr Asp Phe His Ser Glu
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Ser Gly Leu Phe Leu Phe Gln Ala Ser Asn Ser Leu Phe His Cys Arg
            180                 185                 190
Asp Gly Gly Lys Asn Gly Phe Met Val Ser Pro Met Lys Pro Leu Glu
            195                 200                 205
Ile Lys Thr Gln Cys Ser Gly Pro Arg Met Asp Pro Lys Ile Cys Pro
    210                 215                 220
Ala Asp Pro Ala Phe Phe Ser Phe Ile Asn Asn Ser Asp Leu Trp Val
225                 230                 235                 240
Ala Asn Ile Glu Thr Gly Glu Glu Arg Arg Leu Thr Phe Cys His Gln
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Gly Leu Ser Asn Val Leu Asp Asp Pro Lys Ser Ala Gly Val Ala Thr
            260                 265                 270
Phe Val Ile Gln Glu Glu Phe Asp Arg Phe Thr Gly Tyr Trp Trp Cys
            275                 280                 285
Pro Thr Ala Ser Trp Glu Gly Ser Glu Gly Leu Lys Thr Leu Arg Ile
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Leu Tyr Glu Glu Val Asp Glu Ser Glu Val Glu Val Ile His Val Pro
305                 310                 315                 320
Ser Pro Ala Leu Glu Glu Arg Lys Thr Asp Ser Tyr Arg Tyr Pro Arg
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Thr Gly Ser Lys Asn Pro Lys Ile Ala Leu Lys Leu Ala Glu Phe Gln
            340                 345                 350
Thr Asp Ser Gln Gly Lys Ile Val Ser Thr Gln Glu Lys Glu Leu Val
            355                 360                 365
Gln Pro Phe Ser Ser Leu Phe Pro Lys Val Glu Tyr Ile Ala Arg Ala
    370                 375                 380
Gly Trp Thr Arg Asp Gly Lys Tyr Ala Trp Ala Met Phe Leu Asp Arg
385                 390                 395                 400
Pro Gln Gln Trp Leu Gln Leu Val Leu Leu Pro Pro Ala Leu Phe Ile
                405                 410                 415
Pro Ser Thr Glu Asn Glu Glu Gln Arg Leu Ala Ser Ala Arg Ala Val
            420                 425                 430
Pro Arg Asn Val Gln Pro Tyr Val Val Tyr Glu Glu Val Thr Asn Val
            435                 440                 445
Trp Ile Asn Val His Asp Ile Phe Tyr Pro Phe Pro Gln Ser Glu Gly
    450                 455                 460
Glu Asp Glu Leu Cys Phe Leu Arg Ala Asn Glu Cys Lys Thr Gly Phe
465                 470                 475                 480
Cys His Leu Tyr Lys Val Thr Ala Val Leu Lys Ser Gln Gly Tyr Asp
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Trp Ser Glu Pro Phe Ser Pro Gly Glu Gly Glu Gln Ser Leu Thr Asn
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Ala Val Asp Ser Ser Arg
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<210> 26
<211> 2411
<212> DNA
<213> Homo sapiens
<400> 26

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<213> Homo sapiens
<400> 27

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Thr Gly Thr Pro Thr Ala Asp Arg Gly Asp Ala Ala Ala Thr Asp Asp
        35   40   45
Pro Ala Ala Arg Phe Gln Val Gln Lys His Ser Trp Asp Gly Leu Arg
    50   55   60
Ser Ile Ile His Gly Ser Arg Lys Tyr Ser Gly Leu Ile Val Asn Lys
65   70   75   80
Ala Pro His Asp Phe Gln Phe Val Gln Lys Thr Asp Glu Ser Gly Pro
                85   90   95
His Ser His Arg Leu Tyr Tyr Leu Gly Met Pro Tyr Gly Ser Arg Glu
            100   105   110
Asn Ser Leu Leu Tyr Ser Glu Ile Pro Lys Lys Val Arg Lys Glu Ala
            115   120   125
Leu Leu Leu Leu Ser Trp Lys Gln Met Leu Asp His Phe Gln Ala Thr
    130   135   140
Pro His His Gly Val Tyr Ser Arg Glu Glu Glu Leu Leu Arg Glu Arg
145   150   155   160
Lys Arg Leu Gly Val Phe Gly Ile Thr Ser Tyr Asp Phe His Ser Glu
            165   170   175
Ser Gly Leu Phe Leu Phe Gln Ala Ser Asn Ser Leu Phe His Cys Arg
            180   185   190
Asp Gly Gly Lys Asn Gly Phe Met Val Ser Pro Met Lys Pro Leu Glu
            195   200   205
Ile Lys Thr Gln Cys Ser Gly Pro Arg Met Asp Pro Lys Ile Cys Pro
    210   215   220
Ala Asp Pro Ala Phe Phe Ser Phe Ile Asn Asn Ser Asp Leu Trp Val
225   230   235   240
Ala Asn Ile Glu Thr Gly Glu Glu Arg Arg Leu Thr Phe Cys His Gln
            245   250   255
Gly Leu Ser Asn Val Leu Asp Asp Pro Lys Ser Ala Gly Val Ala Thr
            260   265   270
Phe Val Ile Gln Glu Glu Phe Asp Arg Phe Thr Gly Tyr Trp Trp Cys
    275   280   285
Pro Thr Ala Ser Trp Glu Gly Ser Glu Gly Leu Lys Thr Leu Arg Ile
    290   295   300
Leu Tyr Glu Glu Val Asp Glu Ser Glu Val Glu Val Ile His Val Pro
305   310   315   320
Ser Pro Ala Leu Glu Glu Arg Lys Thr Asp Ser Tyr Arg Tyr Pro Arg
            325   330   335
Thr Gly Ser Lys Asn Pro Lys Ile Ala Leu Lys Leu Ala Glu Phe Gln
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Thr Asp Ser Gln Gly Lys Ile Val Ser Thr Gln Glu Lys Glu Leu Val
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Gln Pro Phe Ser Ser Leu Phe Pro Lys Val Glu Tyr Ile Ala Arg Ala
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Gly Trp Thr Arg Asp Gly Lys Tyr Ala Trp Ala Met Phe Leu Asp Arg
385   390   395   400
Pro Gln Gln Trp Leu Gln Leu Val Leu Leu Pro Pro Ala Leu Phe Ile
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Pro Ser Thr Glu Asn Glu Glu Gln Arg Leu Ala Ser Ala Arg Ala Val
            420   425   430
Pro Arg Asn Val Gln Pro Tyr Val Val Tyr Glu Glu Val Thr Asn Val
    435   440   445
Trp Ile Asn Val His Asp Ile Phe Tyr Pro Phe Pro Gln Ser Glu Gly
    450   455   460

-74-

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Cys His Leu Tyr Lys Val Thr Ala Val Leu Lys Ser Gln Gly Tyr Asp
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Trp Ser Glu Pro Phe Ser Pro Gly Glu Asp Glu Phe Lys Cys Pro Ile
            500                 505                 510
Lys Glu Glu Ile Ala Leu Thr Ser Gly Glu Trp Glu Val Leu Ala Arg
        515                 520                 525
His Gly Ser Lys Ile Trp Val Asn Glu Glu Thr Lys Leu Val Tyr Phe
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Gln Gly Thr Lys Asp Thr Pro Leu Glu His His Leu Tyr Val Val Ser
545                 550                 555                 560
Tyr Glu Ala Ala Gly Glu Ile Val Arg Leu Thr Thr Pro Gly Phe Ser
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His Ser Cys Ser Met Ser Gln Asn Phe Asp Met Phe Val Ser His Tyr
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Ser Ser Val Ser Thr Pro Pro Cys Val His Val Tyr Lys Leu Ser Gly
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Pro Asp Asp Asp Pro Leu His Lys Gln Pro Arg Phe Trp Ala Ser Met
610                 615                 620
Met Glu Ala Ala Ser Cys Pro Pro Asp Tyr Val Pro Pro Glu Ile Phe
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His Phe His Thr Arg Ser Asp Val Arg Leu Tyr Gly Met Ile Tyr Lys
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Pro His Ala Leu Gln Pro Gly Lys Lys His Pro Thr Val Leu Phe Val
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Tyr Gly Gly Pro Gln Val Gln Leu Val Asn Asn Ser Phe Lys Gly Ile
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Lys Tyr Leu Arg Leu Asn Thr Leu Ala Ser Leu Gly Tyr Ala Val Val
        690                 695                 700
Val Ile Asp Gly Arg Gly Ser Cys Gln Arg Gly Leu Arg Phe Glu Gly
705                 710                 715                 720
Ala Leu Lys Asn Gln Met Gly Gln Val Glu Ile Glu Asp Gln Val Glu
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Gly Leu Gln Phe Val Ala Glu Lys Tyr Gly Phe Ile Asp Leu Ser Arg
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Val Ala Ile His Gly Trp Ser Tyr Gly Gly Phe Leu Ser Leu Met Gly
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Leu Ile His Lys Pro Gln Val Phe Lys Val Ala Ile Ala Gly Ala Pro
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Val Thr Val Trp Met Ala Tyr Asp Thr Gly Tyr Thr Glu Arg Tyr Met
785                 790                 795                 800
Asp Val Pro Glu Asn Asn Gln His Gly Tyr Glu Ala Gly Ser Val Ala
            805                 810                 815
Leu His Val Glu Lys Leu Pro Asn Glu Pro Asn Arg Leu Leu Ile Leu
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His Gly Phe Leu Asp Glu Asn Val His Phe Phe His Thr Asn Phe Leu
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Val Ser Gln Leu Ile Arg Ala Gly Lys Pro Tyr Gln Leu Gln Ile Tyr
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Glu Val Thr Leu Leu His Phe Leu Gln Glu Tyr Leu
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-75-

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Thr Gly Thr Pro Thr Ala Asp Arg Gly Asp Ala Ala Thr Asp Asp
            35                  40                  45
Pro Ala Ala Arg Phe Gln Val Gln Lys His Ser Trp Asp Gly Leu Arg
        50                  55                  60
Ser Ile Ile His Gly Ser Arg Lys Tyr Ser Gly Leu Ile Val Asn Lys
65                  70                  75                  80
Ala Pro His Asp Phe Gln Phe Val Gln Lys Thr Asp Glu Ser Gly Pro
                85                  90                  95
His Ser His Arg Leu Tyr Tyr Leu Gly Met Pro Tyr Gly Ser Arg Glu
            100                 105                 110
Asn Ser Leu Leu Tyr Ser Glu Ile Pro Lys Lys Val Arg Lys Glu Ala
        115                 120                 125
Leu Leu Leu Leu Ser Trp Lys Gln Met Leu Asp His Phe Gln Ala Thr
    130                 135                 140
Pro His His Gly Val Tyr Ser Arg Glu Glu Glu Leu Leu Arg Glu Arg
145                 150                 155                 160
Lys Arg Leu Gly Val Phe Gly Ile Thr Ser Tyr Asp Phe His Ser Glu
                165                 170                 175
Ser Gly Leu Phe Leu Phe Gln Ala Ser Asn Ser Leu Phe His Cys Arg
            180                 185                 190
Asp Gly Gly Lys Asn Gly Phe Met Val Ser Pro Met Lys Pro Leu Glu
        195                 200                 205
Ile Lys Thr Gln Cys Ser Gly Pro Arg Met Asp Pro Lys Ile Cys Pro
    210                 215                 220
Ala Asp Pro Ala Phe Phe Ser Phe Ile Asn Asn Ser Asp Leu Trp Val
225                 230                 235                 240
Ala Asn Ile Glu Thr Gly Glu Glu Arg Arg Leu Thr Phe Cys His Gln
                245                 250                 255
Gly Leu Ser Asn Val Leu Asp Asp Pro Lys Ser Ala Gly Val Ala Thr
            260                 265                 270
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Pro Thr Ala Ser Trp Glu Gly Ser Glu Gly Leu Lys Thr Leu Arg Ile
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Leu Tyr Glu Glu Val Asp Glu Ser Glu Val Glu Val Ile His Val Pro
305                 310                 315                 320
Ser Pro Ala Leu Glu Glu Arg Lys Thr Asp Ser Tyr Arg Tyr Pro Arg
                325                 330                 335
Thr Gly Ser Lys Asn Pro Lys Ile Ala Leu Lys Leu Ala Glu Phe Gln
            340                 345                 350
Thr Asp Ser Gln Gly Lys Ile Val Ser Thr Gln Glu Lys Glu Leu Val
            355                 360                 365
Gln Pro Phe Ser Ser Leu Phe Pro Lys Val Glu Tyr Ile Ala Arg Ala
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Gly Trp Thr Arg Asp Gly Lys Tyr Ala Trp Ala Met Phe Leu Asp Arg
385                 390                 395                 400
Pro Gln Gln Trp Leu Gln Leu Val Leu Leu Pro Pro Ala Leu Phe Ile
                405                 410                 415
Pro Ser Thr Glu Asn Glu Glu Gln Arg Leu Ala Ser Ala Arg Ala Val
            420                 425                 430
Pro Arg Asn Val Gln Pro Tyr Val Val Tyr Glu Glu Val Thr Asn Val
        435                 440                 445
Trp Ile Asn Val His Asp Ile Phe Tyr Pro Phe Pro Gln Ser Glu Gly
    450                 455                 460
Glu Asp Glu Leu Cys Phe Leu Arg Ala Asn Glu Cys Lys Thr Gly Phe
465                 470                 475                 480
Cys His Leu Tyr Lys Val Thr Ala Val Leu Lys Ser Gln Gly Tyr Asp
                485                 490                 495
Trp Ser Glu Pro Phe Ser Pro Gly Glu Asp Glu Phe Lys Cys Pro Ile
            500                 505                 510
Lys Glu Glu Ile Ala Leu Thr Ser Gly Glu Trp Glu Val Leu Ala Arg
        515                 520                 525
His Gly Ser Lys Ile Trp Val Asn Glu Glu Thr Lys Leu Val Tyr Phe
    530                 535                 540
Gln Gly Thr Lys Asp Thr Pro Leu Glu His His Leu Tyr Val Val Ser
545                 550                 555                 560
Tyr Glu Ala Ala Gly Glu Ile Val Arg Leu Thr Thr Pro Gly Phe Ser
                565                 570                 575
His Ser Cys Ser Met Ser Gln Asn Phe Asp Met Phe Val Ser His Tyr
            580                 585                 590
Ser Ser Val Ser Thr Pro Pro Cys Val His Val Tyr Lys Leu Ser Gly
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Pro Asp Asp Asp Pro Leu His Lys Gln Pro Arg Phe Trp Ala Ser Met
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Met Glu Ala Ala Ser Cys Pro Pro Asp Tyr Val Pro Pro Glu Ile Phe
625                 630                 635                 640
His Phe His Thr Arg Ser Asp Val Arg Leu Tyr Gly Met Ile Tyr Lys
                645                 650                 655
Pro His Ala Leu Gln Pro Gly Lys Lys His Pro Thr Val Leu Phe Val
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Tyr Gly Gly Pro Gln Val Gln Leu Val Asn Asn Ser Phe Lys Gly Ile
        675                 680                 685
Lys Tyr Leu Arg Leu Asn Thr Leu Ala Ser Leu Gly Tyr Ala Val Val
    690                 695                 700
Val Ile Asp Gly Arg Gly Ser Cys Gln Arg Gly Leu Arg Phe Glu Gly
705                 710                 715                 720
Ala Leu Lys Asn Gln Met Gly Gln Val Glu Ile Glu Asp Gln Val Glu
                725                 730                 735
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Gly Leu Gln Phe Val Ala Glu Lys Tyr Gly Phe Ile Asp Leu Ser Arg
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Val Ala Ile His Gly Trp Ser Tyr Gly Gly Phe Leu Ser Leu Met Gly
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Leu Ile His Lys Pro Gln Val Phe Lys Ala Gln Pro Leu Ala Tyr Pro
        770                 775                 780
Pro Arg Leu Pro Gly Arg Lys Arg Ala Leu Phe Pro His Lys Leu Pro
785                 790                 795                 800
Arg Leu Pro Thr Asp Pro Ser Arg Glu Thr Leu Pro Ala Pro Asp Leu
                805                 810                 815
Pro Gln Arg Glu Thr Gln Tyr Ser Leu Pro Arg Val Gly Arg Ala Leu
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<211> 832
<212> PRT
<213> Homo sapiens
<400> 31

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            20                  25                  30
Thr Gly Thr Pro Thr Ala Asp Arg Gly Asp Ala Ala Ala Thr Asp Asp
            35                  40                  45
Pro Ala Ala Arg Phe Gln Val Gln Lys His Ser Trp Asp Gly Leu Arg
        50                  55                  60
Ser Ile Ile His Gly Ser Arg Lys Tyr Ser Gly Leu Ile Val Asn Lys
65                  70                  75                  80
Ala Pro His Asp Phe Gln Phe Val Gln Lys Thr Asp Glu Ser Gly Pro
                85                  90                  95
His Ser His Arg Leu Tyr Tyr Leu Gly Met Pro Tyr Gly Ser Arg Glu
            100                 105                 110
Asn Ser Leu Leu Tyr Ser Glu Ile Pro Lys Lys Val Arg Lys Glu Ala
            115                 120                 125
Leu Leu Leu Leu Ser Trp Lys Gln Met Leu Asp His Phe Gln Ala Thr
        130                 135                 140
Pro His His Gly Val Tyr Ser Arg Glu Glu Glu Leu Leu Arg Glu Arg
145                 150                 155                 160
Lys Arg Leu Gly Val Phe Gly Ile Thr Ser Tyr Asp Phe His Ser Glu
                165                 170                 175
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Ser Gly Leu Phe Leu Phe Gln Ala Ser Asn Ser Leu Phe His Cys Arg
            180                 185                 190
Asp Gly Gly Lys Asn Gly Phe Met Val Ser Pro Met Lys Pro Leu Glu
            195                 200                 205
Ile Lys Thr Gln Cys Ser Gly Pro Arg Met Asp Pro Lys Ile Cys Pro
    210                 215                 220
Ala Asp Pro Ala Phe Phe Ser Phe Ile Asn Asn Ser Asp Leu Trp Val
225                 230                 235                 240
Ala Asn Ile Glu Thr Gly Glu Glu Arg Arg Leu Thr Phe Cys His Gln
                245                 250                 255
Gly Leu Ser Asn Val Leu Asp Asp Pro Lys Ser Ala Gly Val Ala Thr
            260                 265                 270
Phe Val Ile Gln Glu Glu Phe Asp Arg Phe Thr Gly Tyr Trp Trp Cys
        275                 280                 285
Pro Thr Ala Ser Trp Glu Gly Ser Glu Gly Leu Lys Thr Leu Arg Ile
    290                 295                 300
Leu Tyr Glu Glu Val Asp Glu Ser Glu Val Glu Val Ile His Val Pro
305                 310                 315                 320
Ser Pro Ala Leu Glu Glu Arg Lys Thr Asp Ser Tyr Arg Tyr Pro Arg
                325                 330                 335
Thr Gly Ser Lys Asn Pro Lys Ile Ala Leu Lys Leu Ala Glu Phe Gln
            340                 345                 350
Thr Asp Ser Gln Gly Lys Ile Val Ser Thr Gln Glu Lys Glu Leu Val
            355                 360                 365
Gln Pro Phe Ser Ser Leu Phe Pro Lys Val Glu Tyr Ile Ala Arg Ala
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Gly Trp Thr Arg Asp Gly Lys Tyr Ala Trp Ala Met Phe Leu Asp Arg
385                 390                 395                 400
Pro Gln Gln Trp Leu Gln Leu Val Leu Leu Pro Pro Ala Leu Phe Ile
            405                 410                 415
Pro Ser Thr Glu Asn Glu Glu Gln Arg Leu Ala Ser Ala Arg Ala Val
            420                 425                 430
Pro Arg Asn Val Gln Pro Tyr Val Val Tyr Glu Glu Val Thr Asn Val
        435                 440                 445
Trp Ile Asn Val His Asp Ile Phe Tyr Pro Phe Pro Gln Ser Glu Gly
    450                 455                 460
Glu Asp Glu Leu Cys Phe Leu Arg Ala Asn Glu Cys Lys Thr Gly Phe
465                 470                 475                 480
Cys His Leu Tyr Lys Val Thr Ala Val Leu Lys Ser Gln Gly Tyr Asp
                485                 490                 495
Trp Ser Glu Pro Phe Ser Pro Gly Glu Asp Glu Phe Lys Cys Pro Ile
            500                 505                 510
Lys Glu Glu Ile Ala Leu Thr Ser Gly Glu Trp Glu Val Leu Ala Arg
            515                 520                 525
His Gly Ser Lys Ile Trp Val Asn Glu Glu Thr Lys Leu Val Tyr Phe
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Gln Gly Thr Lys Asp Thr Pro Leu Glu His His Leu Tyr Val Val Ser
545                 550                 555                 560
Tyr Glu Ala Ala Gly Glu Ile Val Arg Leu Thr Thr Pro Gly Phe Ser
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His Ser Cys Ser Met Ser Gln Asn Phe Asp Met Phe Val Ser His Tyr
            580                 585                 590
Ser Ser Val Ser Thr Pro Pro Cys Val His Val Tyr Lys Leu Ser Gly
            595                 600                 605
Pro Asp Asp Asp Pro Leu His Lys Gln Pro Arg Phe Trp Ala Ser Met
    610                 615                 620
Met Glu Ala Ala Ser Cys Pro Pro Asp Tyr Val Pro Pro Glu Ile Phe
625                 630                 635                 640
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```
His Phe His Thr Arg Ser Asp Val Arg Leu Tyr Gly Met Ile Tyr Lys
            645             650             655
Pro His Ala Leu Gln Pro Gly Lys Lys His Pro Thr Val Leu Phe Val
            660             665             670
Tyr Gly Gly Pro Gln Val Gln Leu Val Asn Asn Ser Phe Lys Gly Ile
            675             680             685
Lys Tyr Leu Arg Leu Asn Thr Leu Ala Ser Leu Gly Tyr Ala Val Val
            690             695             700
Val Ile Asp Gly Arg Gly Ser Cys Gln Arg Gly Leu Arg Phe Glu Gly
705             710             715             720
Ala Leu Lys Asn Gln Met Gly Gln Val Glu Ile Glu Asp Gln Val Glu
            725             730             735
Gly Leu Gln Phe Val Ala Glu Lys Tyr Gly Phe Ile Asp Leu Ser Arg
            740             745             750
Val Ala Ile His Gly Trp Ser Tyr Gly Gly Phe Leu Ser Leu Met Gly
            755             760             765
Leu Ile His Lys Pro Gln Val Phe Lys Ala Gln Pro Leu Ala Tyr Pro
    770             775             780
Pro Arg Leu Pro Gly Arg Lys Arg Ala Leu Phe Pro His Lys Leu Pro
785             790             795             800
Arg Leu Pro Thr Asp Pro Ser Arg Glu Thr Leu Pro Ala Pro Asp Leu
            805             810             815
Pro Gln Arg Glu Thr Gln Tyr Ser Leu Pro Arg Val Gly Arg Ala Leu
            820             825             830

<210>  32
<211>  4076
<212>  DNA
<213>  Homo sapiens
<400>  32

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-82-

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aggcacggct ccaagatctg ggtcaatgag gagaccaagc tggtgtactt ccagggcacc  1920
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<210> 33
<211> 879
<212> PRT
<213> Homo sapiens
<400> 33

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            20                 25                 30
Thr Gly Thr Pro Thr Ala Asp Arg Gly Asp Ala Ala Ala Thr Asp Asp
            35                 40                 45
Pro Ala Ala Arg Phe Gln Val Gln Lys His Ser Trp Asp Gly Leu Arg
        50                 55                 60
Ser Ile Ile His Gly Ser Arg Lys Tyr Ser Gly Leu Ile Val Asn Lys
65                 70                 75                 80
Ala Pro His Asp Phe Gln Phe Val Gln Lys Thr Asp Glu Ser Gly Pro
                85                 90                 95
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His Ser His Arg Leu Tyr Tyr Leu Gly Met Pro Tyr Gly Ser Arg Glu
            100                 105                 110
Asn Ser Leu Leu Tyr Ser Glu Ile Pro Lys Lys Val Arg Lys Glu Ala
        115                 120                 125
Leu Leu Leu Leu Ser Trp Lys Gln Met Leu Asp His Phe Gln Ala Thr
    130                 135                 140
Pro His His Gly Val Tyr Ser Arg Glu Glu Glu Leu Leu Arg Glu Arg
145                 150                 155                 160
Lys Arg Leu Gly Val Phe Gly Ile Thr Ser Tyr Asp Phe His Ser Glu
            165                 170                 175
Ser Gly Leu Phe Leu Phe Gln Ala Ser Asn Ser Leu Phe His Cys Arg
            180                 185                 190
Asp Gly Gly Lys Asn Gly Phe Met Val Ser Pro Met Lys Pro Leu Glu
        195                 200                 205
Ile Lys Thr Gln Cys Ser Gly Pro Arg Met Asp Pro Lys Ile Cys Pro
    210                 215                 220
Ala Asp Pro Ala Phe Phe Ser Phe Ile Asn Asn Ser Asp Leu Trp Val
225                 230                 235                 240
Ala Asn Ile Glu Thr Gly Glu Glu Arg Arg Leu Thr Phe Cys His Gln
            245                 250                 255
Gly Leu Ser Asn Val Leu Asp Asp Pro Lys Ser Ala Gly Val Ala Thr
            260                 265                 270
Phe Val Ile Gln Glu Glu Phe Asp Arg Phe Thr Gly Tyr Trp Trp Cys
    275                 280                 285
Pro Thr Ala Ser Trp Glu Gly Ser Glu Gly Leu Lys Thr Leu Arg Ile
    290                 295                 300
Leu Tyr Glu Glu Val Asp Glu Ser Glu Val Glu Val Ile His Val Pro
305                 310                 315                 320
Ser Pro Ala Leu Glu Glu Arg Lys Thr Asp Ser Tyr Arg Tyr Pro Arg
            325                 330                 335
Thr Gly Ser Lys Asn Pro Lys Ile Ala Leu Lys Leu Ala Glu Phe Gln
            340                 345                 350
Thr Asp Ser Gln Gly Lys Ile Val Ser Thr Gln Glu Lys Glu Leu Val
            355                 360                 365
Gln Pro Phe Ser Ser Leu Phe Pro Lys Val Glu Tyr Ile Ala Arg Ala
    370                 375                 380
Gly Trp Thr Arg Asp Gly Lys Tyr Ala Trp Ala Met Phe Leu Asp Arg
385                 390                 395                 400
Pro Gln Gln Trp Leu Gln Leu Val Leu Leu Pro Pro Ala Leu Phe Ile
            405                 410                 415
Pro Ser Thr Glu Asn Glu Glu Gln Arg Leu Ala Ser Ala Arg Ala Val
            420                 425                 430
Pro Arg Asn Val Gln Pro Tyr Val Val Tyr Glu Glu Val Thr Asn Val
    435                 440                 445
Trp Ile Asn Val His Asp Ile Phe Tyr Pro Phe Pro Gln Ser Glu Gly
    450                 455                 460
Glu Asp Glu Leu Cys Phe Leu Arg Ala Asn Glu Cys Lys Thr Gly Phe
465                 470                 475                 480
Cys His Leu Tyr Lys Val Thr Ala Val Leu Lys Ser Gln Gly Tyr Asp
            485                 490                 495
Trp Ser Glu Pro Phe Ser Pro Gly Glu Asp Glu Phe Lys Cys Pro Ile
            500                 505                 510
Lys Glu Glu Ile Ala Leu Thr Ser Gly Glu Trp Glu Val Leu Ala Arg
        515                 520                 525
His Gly Ser Lys Gly Thr Lys Asp Thr Pro Leu Glu His His Leu Tyr
    530                 535                 540
Val Val Ser Tyr Glu Ala Ala Gly Glu Ile Val Arg Leu Thr Thr Pro
545                 550                 555                 560
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Gly Phe Ser His Ser Cys Ser Met Ser Gln Asn Phe Asp Met Phe Val
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Ser His Tyr Ser Ser Val Ser Thr Pro Pro Cys Val His Val Tyr Lys
            580                 585                 590
Leu Ser Gly Pro Asp Asp Asp Pro Leu His Lys Gln Pro Arg Phe Trp
            595                 600                 605
Ala Ser Met Met Glu Ala Ala Ser Cys Pro Pro Asp Tyr Val Pro Pro
    610                 615                 620
Glu Ile Phe His Phe His Thr Arg Ser Asp Val Arg Leu Tyr Gly Met
625                 630                 635                 640
Ile Tyr Lys Pro His Ala Leu Gln Pro Gly Lys Lys His Pro Thr Val
            645                 650                 655
Leu Phe Val Tyr Gly Gly Pro Gln Val Gln Leu Val Asn Asn Ser Phe
            660                 665                 670
Lys Gly Ile Lys Tyr Leu Arg Leu Asn Thr Leu Ala Ser Leu Gly Tyr
            675                 680                 685
Ala Val Val Val Ile Asp Gly Arg Gly Ser Cys Gln Arg Gly Leu Arg
    690                 695                 700
Phe Glu Gly Ala Leu Lys Asn Gln Met Gly Gln Val Glu Ile Glu Asp
705                 710                 715                 720
Gln Val Glu Gly Leu Gln Phe Val Ala Glu Lys Tyr Gly Phe Ile Asp
            725                 730                 735
Leu Ser Arg Val Ala Ile His Gly Trp Ser Tyr Gly Gly Phe Leu Ser
            740                 745                 750
Leu Met Gly Leu Ile His Lys Pro Gln Val Phe Lys Val Ala Ile Ala
            755                 760                 765
Gly Ala Pro Val Thr Val Trp Met Ala Tyr Asp Thr Gly Tyr Thr Glu
    770                 775                 780
Arg Tyr Met Asp Val Pro Glu Asn Asn Gln His Gly Tyr Glu Ala Gly
785                 790                 795                 800
Ser Val Ala Leu His Val Glu Lys Leu Pro Asn Glu Pro Asn Arg Leu
            805                 810                 815
Leu Ile Leu His Gly Phe Leu Asp Glu Asn Val His Phe Phe His Thr
            820                 825                 830
Asn Phe Leu Val Ser Gln Leu Ile Arg Ala Gly Lys Pro Tyr Gln Leu
            835                 840                 845
Gln Ile Tyr Pro Asn Glu Arg His Ser Ile Arg Cys Pro Glu Ser Gly
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Glu His Tyr Glu Val Thr Leu Leu His Phe Leu Gln Glu Tyr Leu
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<210>   34
<211>   4263
<212>   DNA
<213>   Homo sapiens
<400>   34

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-85-

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-86-

<210> 35
<211> 879
<212> PRT
<213> Homo sapiens
<400> 35

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Thr Gly Thr Pro Thr Ala Asp Arg Gly Asp Ala Ala Ala Thr Asp Asp
        35                  40                  45
Pro Ala Ala Arg Phe Gln Val Gln Lys His Ser Trp Asp Gly Leu Arg
    50                  55                  60
Ser Ile Ile His Gly Ser Arg Lys Tyr Ser Gly Leu Ile Val Asn Lys
65                  70                  75                  80
Ala Pro His Asp Phe Gln Phe Val Gln Lys Thr Asp Glu Ser Gly Pro
                85                  90                  95
His Ser His Arg Leu Tyr Tyr Leu Gly Met Pro Tyr Gly Ser Arg Glu
            100                 105                 110
Asn Ser Leu Leu Tyr Ser Glu Ile Pro Lys Lys Val Arg Lys Glu Ala
            115                 120                 125
Leu Leu Leu Leu Ser Trp Lys Gln Met Leu Asp His Phe Gln Ala Thr
    130                 135                 140
Pro His His Gly Val Tyr Ser Arg Glu Glu Glu Leu Leu Arg Glu Arg
145                 150                 155                 160
Lys Arg Leu Gly Val Phe Gly Ile Thr Ser Tyr Asp Phe His Ser Glu
                165                 170                 175
Ser Gly Leu Phe Leu Phe Gln Ala Ser Asn Ser Leu Phe His Cys Arg
            180                 185                 190
Asp Gly Gly Lys Asn Gly Phe Met Val Ser Pro Met Lys Pro Leu Glu
            195                 200                 205
Ile Lys Thr Gln Cys Ser Gly Pro Arg Met Asp Pro Lys Ile Cys Pro
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Ala Asp Pro Ala Phe Phe Ser Phe Ile Asn Asn Ser Asp Leu Trp Val
225                 230                 235                 240
Ala Asn Ile Glu Thr Gly Glu Glu Arg Arg Leu Thr Phe Cys His Gln
                245                 250                 255
Gly Leu Ser Asn Val Leu Asp Asp Pro Lys Ser Ala Gly Val Ala Thr
            260                 265                 270
Phe Val Ile Gln Glu Glu Phe Asp Arg Phe Thr Gly Tyr Trp Trp Cys
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Pro Thr Ala Ser Trp Glu Gly Ser Glu Gly Leu Lys Thr Leu Arg Ile
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Leu Tyr Glu Glu Val Asp Glu Ser Glu Val Glu Val Ile His Val Pro
305                 310                 315                 320
Ser Pro Ala Leu Glu Glu Arg Lys Thr Asp Ser Tyr Arg Tyr Pro Arg
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Thr Gly Ser Lys Asn Pro Lys Ile Ala Leu Lys Leu Ala Glu Phe Gln
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Thr Asp Ser Gln Gly Lys Ile Val Ser Thr Gln Glu Lys Glu Leu Val
            355                 360                 365
Gln Pro Phe Ser Ser Leu Phe Pro Lys Val Glu Tyr Ile Ala Arg Ala
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Gly Trp Thr Arg Asp Gly Lys Tyr Ala Trp Ala Met Phe Leu Asp Arg
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Pro Gln Gln Trp Leu Gln Leu Val Leu Leu Pro Pro Ala Leu Phe Ile
                405                 410                 415
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Pro Ser Thr Glu Asn Glu Glu Gln Arg Leu Ala Ser Ala Arg Ala Val
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450 455 460
Glu Asp Glu Leu Cys Phe Leu Arg Ala Asn Glu Cys Lys Thr Gly Phe
465 470 475 480
Cys His Leu Tyr Lys Val Thr Ala Val Leu Lys Ser Gln Gly Tyr Asp
485 490 495
Trp Ser Glu Pro Phe Ser Pro Gly Glu Asp Glu Phe Lys Cys Pro Ile
500 505 510
Lys Glu Glu Ile Ala Leu Thr Ser Gly Glu Trp Glu Val Leu Ala Arg
515 520 525
His Gly Ser Lys Gly Thr Lys Asp Thr Pro Leu Glu His His Leu Tyr
530 535 540
Val Val Ser Tyr Glu Ala Ala Gly Glu Ile Val Arg Leu Thr Thr Pro
545 550 555 560
Gly Phe Ser His Ser Cys Ser Met Ser Gln Asn Phe Asp Met Phe Val
565 570 575
Ser His Tyr Ser Ser Val Ser Thr Pro Pro Cys Val His Val Tyr Lys
580 585 590
Leu Ser Gly Pro Asp Asp Asp Pro Leu His Lys Gln Pro Arg Phe Trp
595 600 605
Ala Ser Met Met Glu Ala Ala Ser Cys Pro Pro Asp Tyr Val Pro Pro
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Glu Ile Phe His Phe His Thr Arg Ser Asp Val Arg Leu Tyr Gly Met
625 630 635 640
Ile Tyr Lys Pro His Ala Leu Gln Pro Gly Lys Lys His Pro Thr Val
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Leu Phe Val Tyr Gly Gly Pro Gln Val Gln Leu Val Asn Asn Ser Phe
660 665 670
Lys Gly Ile Lys Tyr Leu Arg Leu Asn Thr Leu Ala Ser Leu Gly Tyr
675 680 685
Ala Val Val Val Ile Asp Gly Arg Gly Ser Cys Gln Arg Gly Leu Arg
690 695 700
Phe Glu Gly Ala Leu Lys Asn Gln Met Gly Gln Val Glu Ile Glu Asp
705 710 715 720
Gln Val Glu Gly Leu Gln Phe Val Ala Glu Lys Tyr Gly Phe Ile Asp
725 730 735
Leu Ser Arg Val Ala Ile His Gly Trp Ser Tyr Gly Gly Phe Leu Ser
740 745 750
Leu Met Gly Leu Ile His Lys Pro Gln Val Phe Lys Val Ala Ile Ala
755 760 765
Gly Ala Pro Val Thr Val Trp Met Ala Tyr Asp Thr Gly Tyr Thr Glu
770 775 780
Arg Tyr Met Asp Val Pro Glu Asn Asn Gln His Gly Tyr Glu Ala Gly
785 790 795 800
Ser Val Ala Leu His Val Glu Lys Leu Pro Asn Glu Pro Asn Arg Leu
805 810 815
Leu Ile Leu His Gly Phe Leu Asp Glu Asn Val His Phe Phe His Thr
820 825 830
Asn Phe Leu Val Ser Gln Leu Ile Arg Ala Gly Lys Pro Tyr Gln Leu
835 840 845
Gln Ile Tyr Pro Asn Glu Arg His Ser Ile Arg Cys Pro Glu Ser Gly
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865 870 875

-88-

<210> 36
<211> 4180
<212> DNA
<213> Homo sapiens
<400> 36

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-89-

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<210> 37
<211> 819
<212> PRT
<213> Homo sapiens
<400> 37

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Thr Gly Thr Pro Thr Ala Asp Arg Gly Asp Ala Ala Ala Thr Asp Asp
            35                  40                  45
Pro Ala Ala Arg Phe Gln Val Gln Lys His Ser Trp Asp Gly Leu Arg
    50                  55                  60
Ser Ile Ile His Gly Ser Arg Lys Tyr Ser Gly Leu Ile Val Asn Lys
65                  70                  75                  80
Ala Pro His Asp Phe Gln Phe Val Gln Lys Thr Asp Glu Ser Gly Pro
                85                  90                  95
His Ser His Arg Leu Tyr Tyr Leu Gly Met Pro Tyr Gly Ser Arg Glu
            100                 105                 110
Asn Ser Leu Leu Tyr Ser Glu Ile Pro Lys Lys Val Arg Lys Glu Ala
            115                 120                 125
Leu Leu Leu Leu Ser Trp Lys Gln Met Leu Asp His Phe Gln Ala Thr
    130                 135                 140
Pro His His Gly Val Tyr Ser Arg Glu Glu Glu Leu Leu Arg Glu Arg
145                 150                 155                 160
Lys Arg Leu Gly Val Phe Gly Ile Thr Ser Tyr Asp Phe His Ser Glu
                165                 170                 175
Ser Gly Leu Phe Leu Phe Gln Ala Ser Asn Ser Leu Phe His Cys Arg
            180                 185                 190
Asp Gly Gly Lys Asn Gly Phe Met Val Ser Pro Met Lys Pro Leu Glu
            195                 200                 205
Ile Lys Thr Gln Cys Ser Gly Pro Arg Met Asp Pro Lys Ile Cys Pro
    210                 215                 220
Ala Asp Pro Ala Phe Phe Ser Phe Ile Asn Asn Ser Asp Leu Trp Val
225                 230                 235                 240
Ala Asn Ile Glu Thr Gly Glu Glu Arg Arg Leu Thr Phe Cys His Gln
                245                 250                 255
Gly Leu Ser Asn Val Leu Asp Asp Pro Lys Ser Ala Gly Val Ala Thr
            260                 265                 270
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Phe Val Ile Gln Glu Glu Phe Asp Arg Phe Thr Gly Tyr Trp Trp Cys
    275                 280                 285
Pro Thr Ala Ser Trp Glu Gly Ser Glu Gly Leu Lys Thr Leu Arg Ile
    290                 295                 300
Leu Tyr Glu Glu Val Asp Glu Ser Glu Val Glu Val Ile His Val Pro
305                 310                 315                 320
Ser Pro Ala Leu Glu Glu Arg Lys Thr Asp Ser Tyr Arg Tyr Pro Arg
                325                 330                 335
Thr Gly Ser Lys Asn Pro Lys Ile Ala Leu Lys Leu Ala Glu Phe Gln
                340                 345                 350
Thr Asp Ser Gln Gly Lys Ile Val Ser Thr Gln Glu Lys Glu Leu Val
                355                 360                 365
Gln Pro Phe Ser Ser Leu Phe Pro Lys Val Glu Tyr Ile Ala Arg Ala
    370                 375                 380
Gly Trp Thr Arg Asp Gly Lys Tyr Ala Trp Ala Met Phe Leu Asp Arg
385                 390                 395                 400
Pro Gln Gln Trp Leu Gln Leu Val Leu Leu Pro Pro Ala Leu Phe Ile
                405                 410                 415
Pro Ser Thr Glu Asn Glu Glu Gln Arg Leu Ala Ser Ala Arg Ala Val
                420                 425                 430
Pro Arg Asn Val Gln Pro Tyr Val Val Tyr Glu Glu Val Thr Asn Val
                435                 440                 445
Trp Ile Asn Val His Asp Ile Phe Tyr Pro Phe Pro Gln Ser Glu Gly
    450                 455                 460
Glu Asp Glu Leu Cys Phe Leu Arg Ala Asn Glu Cys Lys Thr Gly Phe
465                 470                 475                 480
Cys His Leu Tyr Lys Val Thr Ala Val Leu Lys Ser Gln Gly Tyr Asp
                485                 490                 495
Trp Ser Glu Pro Phe Ser Pro Gly Glu Asp Glu Phe Lys Cys Pro Ile
                500                 505                 510
Lys Glu Glu Ile Ala Leu Thr Ser Gly Glu Trp Glu Val Leu Ala Arg
                515                 520                 525
His Gly Ser Lys Gly Thr Lys Asp Thr Pro Leu Glu His His Leu Tyr
    530                 535                 540
Val Val Ser Tyr Glu Ala Ala Gly Glu Ile Val Arg Leu Thr Thr Pro
545                 550                 555                 560
Gly Phe Ser His Ser Cys Ser Met Ser Gln Asn Phe Asp Met Phe Val
                565                 570                 575
Ser His Tyr Ser Ser Val Ser Thr Pro Pro Cys Val His Val Tyr Lys
                580                 585                 590
Leu Ser Gly Pro Asp Asp Asp Pro Leu His Lys Gln Pro Arg Phe Trp
    595                 600                 605
Ala Ser Met Met Glu Ala Ala Ser Cys Pro Pro Asp Tyr Val Pro Pro
    610                 615                 620
Glu Ile Phe His Phe His Thr Arg Ser Asp Val Arg Leu Tyr Gly Met
625                 630                 635                 640
Ile Tyr Lys Pro His Ala Leu Gln Pro Gly Lys Lys His Pro Thr Val
                645                 650                 655
Leu Phe Val Tyr Gly Gly Pro Gln Val Gln Leu Val Asn Asn Ser Phe
                660                 665                 670
Lys Gly Ile Lys Tyr Leu Arg Leu Asn Thr Leu Ala Ser Leu Gly Tyr
                675                 680                 685
Ala Val Val Val Ile Asp Gly Arg Gly Ser Cys Gln Arg Gly Leu Arg
    690                 695                 700
Phe Glu Gly Ala Leu Lys Asn Gln Met Gly Gln Val Glu Ile Glu Asp
705                 710                 715                 720
Gln Val Glu Gly Leu Gln Phe Val Ala Glu Lys Tyr Gly Phe Ile Asp
                725                 730                 735
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Leu Ser Arg Val Ala Ile His Gly Trp Ser Tyr Gly Gly Phe Leu Ser
        740                 745             750
Leu Met Gly Leu Ile His Lys Pro Gln Val Phe Lys Ala Gln Pro Leu
        755                 760             765
Ala Tyr Pro Pro Arg Leu Pro Gly Arg Lys Arg Ala Leu Phe Pro His
        770                 775             780
Lys Leu Pro Arg Leu Pro Thr Asp Pro Ser Arg Glu Thr Leu Pro Ala
785                 790                 795                 800
Pro Asp Leu Pro Gln Arg Glu Thr Gln Tyr Ser Leu Pro Arg Val Gly
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Arg Ala Leu
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<210> 38
<211> 4120
<212> DNA
<213> Homo sapiens
<400> 38

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<212> PRT
<213> Homo sapiens
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Thr Gly Thr Pro Thr Ala Asp Arg Gly Asp Ala Ala Ala Thr Asp Asp
            35                  40                  45
Pro Ala Ala Arg Phe Gln Val Gln Lys His Ser Trp Asp Gly Leu Arg
        50                  55                  60
Ser Ile Ile His Gly Ser Arg Lys Tyr Ser Gly Leu Ile Val Asn Lys
65                  70                  75                  80
Ala Pro His Asp Phe Gln Phe Val Gln Lys Thr Asp Glu Ser Gly Pro
                85                  90                  95
His Ser His Arg Leu Tyr Tyr Leu Gly Met Pro Tyr Gly Ser Arg Glu
            100                 105                 110
Asn Ser Leu Leu Tyr Ser Glu Ile Pro Lys Lys Val Arg Lys Glu Ala
            115                 120                 125
Leu Leu Leu Leu Ser Trp Lys Gln Met Leu Asp His Phe Gln Ala Thr
        130                 135                 140
Pro His His Gly Val Tyr Ser Arg Glu Glu Glu Leu Leu Arg Glu Arg
145                 150                 155                 160
Lys Arg Leu Gly Val Phe Gly Ile Thr Ser Tyr Asp Phe His Ser Glu
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Ser Gly Leu Phe Leu Phe Gln Ala Ser Asn Ser Leu Phe His Cys Arg
            180                 185                 190
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Asp Gly Gly Lys Asn Gly Phe Met Val Ser Pro Met Lys Pro Leu Glu
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Ile Lys Thr Gln Cys Ser Gly Pro Arg Met Asp Pro Lys Ile Cys Pro
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225                 230                 235                 240
Ala Asn Ile Glu Thr Gly Glu Glu Arg Arg Leu Thr Phe Cys His Gln
                245                 250                 255
Gly Leu Ser Asn Val Leu Asp Asp Pro Lys Ser Ala Gly Val Ala Thr
            260                 265                 270
Phe Val Ile Gln Glu Glu Phe Asp Arg Phe Thr Gly Tyr Trp Trp Cys
        275                 280                 285
Pro Thr Ala Ser Trp Glu Gly Ser Glu Gly Leu Lys Thr Leu Arg Ile
    290                 295                 300
Leu Tyr Glu Glu Val Asp Glu Ser Glu Val Glu Val Ile His Val Pro
305                 310                 315                 320
Ser Pro Ala Leu Glu Glu Arg Lys Thr Asp Ser Tyr Arg Tyr Pro Arg
                325                 330                 335
Thr Gly Ser Lys Asn Pro Lys Ile Ala Leu Lys Leu Ala Glu Phe Gln
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Thr Asp Ser Gln Gly Lys Ile Val Ser Thr Gln Glu Lys Glu Leu Val
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Gln Pro Phe Ser Ser Leu Phe Pro Lys Val Glu Tyr Ile Ala Arg Ala
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Gly Trp Thr Arg Asp Gly Lys Tyr Ala Trp Ala Met Phe Leu Asp Arg
385                 390                 395                 400
Pro Gln Gln Trp Leu Gln Leu Val Leu Leu Pro Pro Ala Leu Phe Ile
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Pro Ser Thr Glu Asn Glu Glu Gln Arg Leu Ala Ser Ala Arg Ala Val
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Pro Arg Asn Val Gln Pro Tyr Val Val Tyr Glu Glu Val Thr Asn Val
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Glu Asp Glu Leu Cys Phe Leu Arg Ala Asn Glu Cys Lys Thr Gly Phe
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Cys His Leu Tyr Lys Val Thr Ala Val Leu Lys Ser Gln Gly Tyr Asp
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Trp Ser Glu Pro Phe Ser Pro Gly Glu Asp Glu Phe Lys Cys Pro Ile
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Lys Glu Glu Ile Ala Leu Thr Ser Gly Glu Trp Glu Val Leu Ala Arg
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His Gly Ser Lys Gly Thr Lys Asp Thr Pro Leu Glu His His Leu Tyr
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Val Val Ser Tyr Glu Ala Ala Gly Glu Ile Val Arg Leu Thr Thr Pro
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Gly Phe Ser His Ser Cys Ser Met Ser Gln Asn Phe Asp Met Phe Val
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Ser His Tyr Ser Ser Val Ser Thr Pro Pro Cys Val His Val Tyr Lys
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Leu Ser Gly Pro Asp Asp Asp Pro Leu His Lys Gln Pro Arg Phe Trp
    595                 600                 605
Ala Ser Met Met Glu Ala Ala Ser Cys Pro Pro Asp Tyr Val Pro Pro
    610                 615                 620
Glu Ile Phe His Phe His Thr Arg Ser Asp Val Arg Leu Tyr Gly Met
625                 630                 635                 640
Ile Tyr Lys Pro His Ala Leu Gln Pro Gly Lys Lys His Pro Thr Val
            645                 650                 655
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Lys Gly Ile Lys Tyr Leu Arg Leu Asn Thr Leu Ala Ser Leu Gly Tyr
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Ala Val Val Val Ile Asp Gly Arg Gly Ser Cys Gln Arg Gly Leu Arg
            690                 695                 700
Phe Glu Gly Ala Leu Lys Asn Gln Met Gly Gln Val Glu Ile Glu Asp
705                 710                 715                 720
Gln Val Glu Gly Leu Gln Phe Val Ala Glu Lys Tyr Gly Phe Ile Asp
            725                 730                 735
Leu Ser Arg Val Ala Ile His Gly Trp Ser Tyr Gly Gly Phe Leu Ser
            740                 745                 750
Leu Met Gly Leu Ile His Lys Pro Gln Val Phe Lys Ala Gln Pro Leu
            755                 760                 765
Ala Tyr Pro Pro Arg Leu Pro Gly Arg Lys Arg Ala Leu Phe Pro His
            770                 775                 780
Lys Leu Pro Arg Leu Pro Thr Asp Pro Ser Arg Glu Thr Leu Pro Ala
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<212>    DNA
<213>    Homo sapiens
<400>    40

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-95-

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<211> 706
<212> PRT
<213> Homo sapiens
<400> 41

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Val Thr Phe Lys Ala Ser Arg His Ser Val Ser Pro Asp Leu Lys Tyr
            35                  40                  45
Val Leu Leu Ala Tyr Asp Val Lys Gln Ile Phe His Tyr Ser Tyr Thr
        50                  55                  60
Ala Ser Tyr Val Ile Tyr Asn Ile His Thr Arg Glu Val Trp Glu Leu
65                  70                  75                  80
Asn Pro Pro Glu Val Glu Asp Ser Val Leu Gln Tyr Ala Ala Trp Gly
                85                  90                  95
Val Gln Gly Gln Gln Leu Ile Tyr Ile Phe Glu Asn Asn Ile Tyr Tyr
            100                 105                 110
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Gln Pro Asp Ile Lys Ser Ser Ser Leu Arg Leu Thr Ser Ser Gly Lys
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Glu Glu Ile Ile Phe Asn Gly Ile Ala Asp Trp Leu Tyr Glu Glu Glu
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Leu Leu His Ser His Ile Ala His Trp Trp Ser Pro Asp Gly Glu Arg
145                 150                     155                 160
Leu Ala Phe Leu Met Ile Asn Asp Ser Leu Val Pro Thr Met Val Ile
                165                 170                 175
Pro Arg Phe Thr Gly Ala Leu Tyr Pro Lys Gly Lys Gln Tyr Pro Tyr
            180                 185                 190
Pro Lys Ala Gly Gln Val Asn Pro Thr Ile Lys Leu Tyr Val Val Asn
        195                 200                 205
Leu Tyr Gly Pro Thr His Thr Leu Glu Leu Met Pro Pro Asp Ser Phe
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Lys Ser Arg Glu Tyr Tyr Ile Thr Met Val Lys Trp Val Ser Asn Thr
225                 230                 235                 240
Lys Thr Val Val Arg Trp Leu Asn Arg Pro Gln Asn Ile Ser Ile Leu
                245                 250                 255
Thr Val Cys Glu Thr Thr Thr Gly Ala Cys Ser Lys Lys Tyr Glu Met
            260                 265                 270
Thr Ser Asp Thr Trp Leu Ser Gln Gln Asn Glu Glu Pro Val Phe Ser
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Arg Asp Gly Ser Lys Phe Phe Met Thr Val Pro Val Lys Gln Gly Gly
    290                 295                 300
Arg Gly Glu Phe His His Ile Ala Met Phe Leu Ile Gln Ser Lys Ser
305                 310                 315                 320
Glu Gln Ile Thr Val Arg His Leu Thr Ser Gly Asn Trp Glu Val Ile
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Lys Ile Leu Ala Tyr Asp Glu Thr Thr Gln Lys Ile Tyr Phe Leu Ser
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        355                 360                 365
Gly Leu Leu Asn Arg Gln Cys Ile Ser Cys Asn Phe Met Lys Glu Gln
    370                 375                 380
Cys Thr Tyr Phe Asp Ala Ser Phe Ser Pro Met Asn Gln His Phe Leu
385                 390                 395                 400
Leu Phe Cys Glu Gly Pro Arg Val Pro Val Val Ser Leu His Ser Thr
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Asp Asn Pro Ala Lys Tyr Phe Ile Leu Glu Ser Asn Ser Met Leu Lys
            420                 425                 430
Glu Ala Ile Leu Lys Lys Lys Ile Gly Lys Pro Glu Ile Lys Ile Leu
            435                 440                 445
His Ile Asp Asp Tyr Glu Leu Pro Leu Gln Leu Ser Leu Pro Lys Asp
    450                 455                 460
Phe Met Asp Arg Asn Gln Tyr Ala Leu Leu Leu Ile Met Asp Glu Glu
465                 470                 475                 480
Pro Gly Gly Gln Leu Val Thr Asp Lys Phe His Ile Asp Trp Asp Ser
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Val Leu Ile Asp Met Asp Asn Val Ile Val Ala Arg Phe Asp Gly Arg
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Gly Ser Gly Phe Gln Gly Leu Lys Ile Leu Gln Glu Ile His Arg Arg
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Leu Gly Ser Val Glu Val Lys Asp Gln Ile Thr Ala Val Lys Phe Leu
    530                 535                 540
Leu Lys Leu Pro Tyr Ile Asp Ser Lys Arg Leu Ser Ile Phe Gly Lys
545                 550                 555                 560
Gly Tyr Gly Gly Tyr Ile Ala Ser Met Ile Leu Lys Ser Asp Glu Lys
                565                 570                 575
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        595                     600                 605
Glu Ser Thr Tyr Gln Ala Ala Ser Val Leu His Asn Val His Gly Leu
    610                     615                 620
Lys Glu Glu Asn Ile Leu Ile Ile His Gly Thr Ala Asp Thr Lys Val
625                     630                 635                 640
His Phe Gln His Ser Ala Glu Leu Ile Lys His Leu Ile Lys Ala Gly
            645                 650                 655
Val Asn Tyr Thr Met Gln Val Tyr Pro Asp Glu Gly His Asn Val Ser
        660                     665                 670
Glu Lys Ser Lys Tyr His Leu Tyr Ser Thr Ile Leu Lys Phe Phe Ser
        675                     680                 685
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Asp Glu
705


<210>  42
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<212>  DNA
<213>  Homo sapiens
<400>  42

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<211> 691
<212> PRT
<213> Homo sapiens
<400> 43

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Val Thr Phe Lys Ala Ser Arg His Ser Val Ser Pro Asp Leu Lys Tyr
        35                  40                  45
Val Leu Leu Ala Tyr Asp Val Lys Gln Ile Phe His Tyr Ser Tyr Thr
    50                  55                  60
Ala Ser Tyr Val Ile Tyr Asn Ile His Thr Arg Glu Val Trp Glu Leu
65                  70                  75                  80
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                85   90   95
Val Gln Gly Gln Gln Leu Ile Tyr Ile Phe Glu Asn Asn Ile Tyr Tyr
            100   105   110
Gln Pro Asp Ile Lys Ser Ser Ser Leu Arg Leu Thr Ser Ser Gly Lys
            115   120   125
Glu Glu Ile Ile Phe Asn Gly Ile Ala Asp Trp Leu Tyr Glu Glu Glu
    130   135   140
Leu Leu His Ser His Ile Ala His Trp Trp Ser Pro Asp Gly Glu Arg
145   150   155   160
Leu Ala Phe Leu Met Ile Asn Asp Ser Leu Val Pro Thr Met Val Ile
                165   170   175
Pro Arg Phe Thr Gly Ala Leu Tyr Pro Lys Gly Lys Gln Tyr Pro Tyr
                180   185   190
Pro Lys Ala Gly Gln Val Asn Pro Thr Ile Lys Leu Tyr Val Val Asn
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Leu Tyr Gly Pro Thr His Thr Leu Glu Leu Met Pro Pro Asp Ser Phe
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Lys Ser Arg Glu Tyr Tyr Ile Thr Met Val Lys Trp Val Ser Asn Thr
225   230   235   240
Lys Thr Val Val Arg Trp Leu Asn Arg Pro Gln Asn Ile Ser Ile Leu
                245   250   255
Thr Val Cys Glu Thr Thr Thr Gly Ala Cys Ser Lys Lys Tyr Glu Met
            260   265   270
Thr Ser Asp Thr Trp Leu Ser Gln Gln Asn Glu Glu Pro Val Phe Ser
            275   280   285
Arg Asp Gly Ser Lys Phe Phe Met Thr Val Pro Val Lys Gln Gly Gly
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Arg Gly Glu Phe His His Ile Ala Met Phe Leu Ile Gln Ser Lys Ser
305   310   315   320
Glu Gln Ile Thr Val Arg His Leu Thr Ser Gly Asn Trp Glu Val Ile
                325   330   335
Lys Ile Leu Ala Tyr Asp Glu Thr Thr Gln Lys Ile Ser Ala Ser Thr
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Glu Gly Leu Leu Asn Arg Gln Cys Ile Ser Cys Asn Phe Met Lys Glu
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Gln Cys Thr Tyr Phe Asp Ala Ser Phe Ser Pro Met Asn Gln His Phe
    370   375   380
Leu Leu Phe Cys Glu Gly Pro Arg Val Pro Val Val Ser Leu His Ser
385   390   395   400
Thr Asp Asn Pro Ala Lys Tyr Phe Ile Leu Glu Ser Asn Ser Met Leu
                405   410   415
Lys Glu Ala Ile Leu Lys Lys Lys Ile Gly Lys Pro Glu Ile Lys Ile
            420   425   430
Leu His Ile Asp Asp Tyr Glu Leu Pro Leu Gln Leu Ser Leu Pro Lys
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Asp Phe Met Asp Arg Asn Gln Tyr Ala Leu Leu Leu Ile Met Asp Glu
    450   455   460
Glu Pro Gly Gly Gln Leu Val Thr Asp Lys Phe His Ile Asp Trp Asp
465   470   475   480
Ser Val Leu Ile Asp Met Asp Asn Val Ile Val Ala Arg Phe Asp Gly
                485   490   495
Arg Gly Ser Gly Phe Gln Gly Leu Lys Ile Leu Gln Glu Ile His Arg
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Arg Leu Gly Ser Val Glu Val Lys Asp Gln Ile Thr Ala Val Lys Phe
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Leu Leu Lys Leu Pro Tyr Ile Asp Ser Lys Arg Leu Ser Ile Phe Gly
530   535   540

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Lys Leu Phe Lys Cys Gly Ser Val Val Ala Pro Ile Thr Asp Leu Lys
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Leu Tyr Ala Ser Ala Phe Ser Glu Arg Tyr Leu Gly Met Pro Ser Lys
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Glu Glu Ser Thr Tyr Gln Ala Ala Ser Val Leu His Asn Val His Gly
            595                 600                 605
Leu Lys Glu Glu Asn Ile Leu Ile Ile His Gly Thr Ala Asp Thr Lys
        610             615                 620
Val His Phe Gln His Ser Ala Glu Leu Ile Lys His Leu Ile Lys Ala
625             630                 635                 640
Gly Val Asn Tyr Thr Met Gln Val Tyr Pro Asp Glu Gly His Asn Val
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Ser Glu Lys Ser Lys Tyr His Leu Tyr Ser Thr Ile Leu Lys Phe Phe
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Glu Asp Glu
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<211> 4496
<212> DNA
<213> Homo sapiens
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-101-

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<213> Homo sapiens
<400> 45

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<210> 46
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<212> DNA
<213> Homo sapiens
<400> 46

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<400>   48

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<210>   49
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<400>   49

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<210>   50
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<400> 54

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Asp Ser Val

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<213> Homo sapiens
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Arg Asn Val

<210> 61
<211> 15

<212>   PRT
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